

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



LSHTM Research Online

Al-Hajerri, Maha; (2006) An exploratory study of factors affecting the successful implementation of health information systems in the Kuwaiti health care delivery system. PhD thesis, London School of Hygiene & Tropical Medicine. DOI: <https://doi.org/10.17037/PUBS.00682358>

Downloaded from: <https://researchonline.lshtm.ac.uk/id/eprint/682358/>

DOI: <https://doi.org/10.17037/PUBS.00682358>

Usage Guidelines:

Please refer to usage guidelines at <https://researchonline.lshtm.ac.uk/policies.html> or alternatively contact researchonline@lshtm.ac.uk.

Available under license. To note, 3rd party material is not necessarily covered under this license: <http://creativecommons.org/licenses/by-nc-nd/3.0/>

<https://researchonline.lshtm.ac.uk>

**An Exploratory Study of Factors Affecting the
Successful Implementation of Health Information
Systems in the Kuwaiti Health Care Delivery System**

**By
Maha Al-Hajerri**

**A thesis submitted for the degree of
Doctor of Philosophy
University of London**

**Department of Public Health and Policy
Health Services Research Unit
London School of Hygiene and Tropical Medicine**

**2005
6**

ABSTRACT

Health care delivery systems face different obstacles when engaged in health information systems implementation. The success of such systems is dependent upon many factors. These factors must be identified and carefully considered to ensure successful system implementation. This study investigates possible factors affecting successful information systems implementation in the Kuwaiti health care delivery system within the public and private sectors.

The research was designed as an exploratory study in which qualitative and quantitative approaches were used. In the first stage (qualitative) a focus group was formed and then a semi-structured interview was administered. Themes that emerged from the interviews were used to develop a questionnaire that was used in the second (quantitative) stage of the study. The study covered stakeholders from the public and private sectors in Kuwait. The qualitative part investigated the impact of certain factors on system implementation successfulness. Based on interviewees' responses, three major themes emerged. Those were used to develop the questionnaire which was used in the quantitative part of the study. The questionnaire was aimed at describing the perception of the stakeholders to the preset factors with regard to their effects on the success of implementation in their respective organisations. From both sectors, a sample of 493 respondents was randomly

selected. The response rate for the questionnaire from the two sectors ranged from 59% to 72% depending on the stakeholders' group of respondents.

When examining the findings of the questionnaire, the perceptions of the top management in the public sector at MOH and Al-Amiri hospital were similar toward most of the factors studied. However, they were different from those of the end users. On the other hand, the perceptions of the top management and the end users were similar in the private sector.

The top management in the public sector (MOH and Al-Amiri hospital) ranked the following factors in this order as the most important factors that affected successful health information systems implementation in the public sector: Accountability; Resistance to change; Organisational diversity; Organisational stability; and Incentives.

The end users in the public sector ranked the following factors as the most important factors that affected successful health information systems implementation in the public sector: Lack of end user involvement; Insufficient planning; Training; Incentives; and Uncertainty of benefits.

Both the top management and end users of the public sector ranked "Incentives" as one of the most important factors that affected successful health information system implementation, but this was the only point of agreement between them.

In the private sector, the top management ranked the following factors as the most important factors that affected successful health information

systems implementation: Resistance to change; Ease of usage; Competition; Incentives; and Compatibility.

The end users in the private sector ranked the following factors: Ease of usage; Timeliness; Incentives; Relative advantage; and Competition.

The top management and end users in the private sector concurred over the importance of the following factors: Ease of usage; and Competition.

In conclusion, both the public and private sector participants (top management and end users) ranked 'Incentives' as one of the most important factors that affected successful health information system implementation, while the top management in both sectors (MOH, Al-Amiri and Al-Mowasat hospitals) ranked 'Resistance to change' as one of the most important factors that affected successful health information system implementation.

In all, the results show that the primary factor affecting successful implementation of health information system regardless of the sector and the employment category is 'Incentives', followed by 'Resistance to change'.

The information produced in the current study was used to produce recommendations on the successful future implementation of health information systems in Kuwait. The recommendations are based on empirical findings, and are to be respectfully commended to strategists concerned with improving health care delivery system in Kuwait.

The first and most obvious recommendation regarding future research would be a replication of the same study, but with the inclusion of more comprehensive attributes such as: 1) Vendor services (e.g. hardware performance, expansion and growth potential, ease of modification, interface capabilities, ease of installation, and upgrading capabilities. 2) Vendor selection factors (e.g. vendor reputation and company philosophy, system pricing, and vendor resources. 3) Patient satisfaction with the system benefits.

The second recommendation is to use the same organisational, cultural and user satisfaction factors to examine health information systems implementation in a specific facility such as an Army or Police hospital versus a public hospital.

DEDICATION

**This Thesis is dedicated to my parents, family, friends, and
teachers.**

ACKNOWLEDGEMENT

I am thankful to all who extended help and cooperation in my research study. I am particularly indebted to Dr. John Browne, my supervisor, for his valuable suggestions, constructive criticism and guidance during the present study.

I would like to thank the members of my advisory committee for their time and effort: Dr. Colin Sanderson and Dr. Nick Goodwin. Many thanks to all of London School of Hygiene and Tropical Medicine's academic staff, administrative staff and colleagues, who have provided support and advice as needed.

I express my hearty appreciation to Dr. Habib Abul, Dean of Faculty of Allied Health Sciences and Nursing, Kuwait University, for administrative support during my study years. I would like to thank Dr. Shah, Kuwait University, for his support and encouragement.

I thank the Government of Kuwait, the Ministry of Health, the medical staff, nurses, and administrators in Kuwait for their encouragement and support during my research work.

I would like to thank my colleagues at the University of Kuwait, who extended their help and support.

Special thanks and appreciation are due to Al-Mowasat Hospital for giving me the opportunity to do my research within their facilities.

I wish to express my sincere gratitude to my dearest friend Dr. Roqayyah Taqi for her stimulating company and valuable friendship.

I owe it to my countrymen and the society to share the knowledge and data base created and collated during the research study. It would not have been possible to bring the study to its logical conclusion in the form of the present thesis without the cooperation and support of my family; they extended it beyond the call of duty.

TABLE OF CONTENTS

Chapter One – Introduction.....	18
1.1 Overview.....	18
1.2 Overview of a Hospital Information System (HIS).....	20
1.3 Information System Implementation Research	24
1.4 A Statement of the Problem.....	28
1.5 Aim of the Study.....	29
1.6 Research Study Questions.....	29
1.7 Research Study Impact.....	30
1.8 Summary.....	30
Chapter Two – The Kuwait Health Care Delivery System.....	31
2.1 Section One: The Kuwait.....	31
2.1.1 Location.....	31
2.1.2 Economy.....	31
2.1.3 Government in Kuwait.....	33
2.1.4 Historical Development of Kuwait Society.....	34
2.1.5 Labour Force.....	36
2.1.6 The History of HCDS in Kuwait.....	40
2.1.7 Ministry of Health (MOH).....	40
2.1.8 The Current Structure of the HCDS in Kuwait	43
2.1.9 Health Manpower.....	45
2.1.10 Summary.....	46
2.2 Section Two: Sociological Perspectives on Kuwait.....	47
2.2.1 Overview.....	47
2.2.2 Basic Theories of Social Stratification.....	47
2.2.3 Social Structure of Kuwait Society.....	49
2.2.4 Composition of Migrant Workforce.....	52
2.2.5 Social Distinction at the Public HCDS.....	53

2.2.6 Summary.....	63
2.3 Section Three: Health Information System (HIS) in the Kuwait HCDS	65
2.3.1 Definition of Public and Private Organisations...	65
2.3.2 The Public Sector Experiment with HIS.....	66
2.3.3 The Private Sector's Experiment with HIS.....	76
2.3.4 Description of HIS in the Public and Private Sectors.....	80
2.4 Conclusion.....	83
Chapter Three – Literature Review.....	86
3.1 Search Strategy.....	87
3.1.1 Question One.....	89
3.1.2 Question Two.....	92
3.1.3. Question Three.....	95
3.1.4 Question Four.....	100
3.2 Section One: Change.....	102
3.2.1 Overview.....	102
3.2.2 Definition of Change.....	102
3.2.3 Types of Change.....	105
3.2.4 Systems Thinking and Change.....	109
3.2.5 Organisation Change in the Kuwait HCDS.....	114
3.2.6 Learning from the Private Sector.....	115
3.2.7 Challenges Facing the Public Sector in Kuwait..	116
3.2.8 Change Management Models.....	118
3.2.9 Lessons Learned from these Theories.....	135
3.2.10 How can we implement change successfully ...	143
3.2.11 What is the definition of an Organisation.....	143
3.2.12 What is the definition of Culture.....	176
3.2.13 Conclusion.....	196
3.3. Section Two: Information System.....	201

3.3.1 Overview.....	201
3.3.2 Stages of the IS Implementation Process.....	202
3.3.3 IS Evaluation Literature.....	205
3.3.4 Theme One.....	211
3.3.5 Theme Two.....	216
3.3.6 Summary.....	228
3.4. Section Three: Health Information System (HIS).....	226
3.4.1 Overview.....	226
3.4.2 Evaluating IS in Health Care Organisations.....	227
3.4.3 Health Care Organisations and IT Adoption.....	230
3.4.4 Theme One.....	238
3.4.5 Theme Two.....	247
3.4.6 Summary.....	253
3.5 Section Four: Implication of the Literature on decisions regarding the current study.....	256
3.5.1 Summary.....	257
Chapter Four – Methods.....	259
4.1 Overview.....	259
4.2 Research Study Aims.....	262
4.3 Research Study Questions.....	262
4.4 Study Design.....	263
4.5 Summary.....	265
Chapter Five – Qualitative Stage (First Stage: Focus Group).....	266
5.1 Overview.....	266
5.2 Sampling Method.....	269
5.3 The Focus Group.....	272
5.4 Setting.....	272
5.5 Focus Group Participants.....	273
5.6 Focus Group Moderators.....	274
5.7 Data Collection.....	276

5.8 Focus Group Data Analysis.....	277
5.9 Focus Group Findings.....	283
5.10 Validity of the Findings.....	305
5.11 Summary.....	308
Chapter Six – Qualitative Stage (Stage Two – Interviews).....	311
6.1 Overview.....	311
6.2 Interviewees.....	313
6.3 Setting.....	314
6.4 Interviewers.....	315
6.5 Data Collection.....	315
6.6 Data Analysis.....	316
6.7 Interview Findings.....	317
6.8 Summary.....	337
Chapter Seven – Qualitative Stage (Stage Three – Questionnaires)	341
7.1 Overview.....	341
7.2 The Questionnaire.....	346
7.3 Arabic Version Questionnaire.....	357
7.4 Setting.....	358
7.5 Population.....	359
7.6 Sample Size.....	360
7.7 Plan for Data Analysis.....	363
7.8 Questionnaire Findings.....	364
7.8.1 Overview.....	364
7.8.2 Questionnaire Administration Process & Response Rates.....	364
7.8.3 The Public and Private Sector Findings.....	366
Chapter Eight – Discussion.....	416
8.1 Summary of Findings.....	416
8.2 Limitations.....	419

8.3 Discussions of Findings 426

8.4 Comparison between the Public and Private Sectors..... 426

8.5 Recommendations 464

8.6 Contribution to the Field of HIS Implementation 489

8.7 Further Research 490

References..... 491

Appendix 1-Summaries the Results of the Literature Search Conducted to Locate Studies of IS/IT..... 569

Appendix 2 – Summary of the Quality of Study..... 572

Appendix 3 – Summaries the Results of the Literature Search Conducted to Locate Studies of HIS..... 574

Appendix 4- Summary of the Quality of Study..... 577

Appendix 5-Ethical Approval..... 581

Appendix 6- Interview Guide..... 582

Appendix 7- Questionnaire..... 584

List of Figures

2.1	A Map of the State of Kuwait.....	37
2.2	Ministry of Health Chart.....	42
2.3	The Organisational Structure of the Al-Amiri Hospital.....	73
2.4	Al-Mowasat Chart.....	79
3.1	Perspectives on Change (Adapted from Iles et. al 2000).....	108
3.2	Lewin’s Force Field Model (Adapted from Iles et. al 2000).....	124
3.3	Adaptors Distribution.....	129
3.4	The 7S Model.....	132
4.1	Outline of the Methodology Chapter.....	260
4.2	The Stage of the Current Study.....	261

List of Tables

2.1	The Various Care Facilities in Kuwait Today.....	44
2.2	Description of the HIS in the Public and Private Sectors.....	83
3.1	The Search History used in the Medline Database.....	93
3.2	The Search History used in the ProQuest/ABI Inform Database.....	94
3.3	The number of articles and the reason for their rejection in both databases.....	95
3.4	The Search History used in the Medline Database.....	96
3.5	The Search History used in the ProQuest/ABI Inform Database.....	97
3.6	The number of articles and the reason for their rejection in both database.....	98
3.7	Dimension and Factors of Information Systems Success covered by Bailey and Pearson.....	225
3.8	The Three Themes of HIS implementation Process and the Factors that could be Driving or Restraining Forces.....	255
5.1	The Three Themes of HIS Implementation Process and the Factors	322
6.1	The Three Themes of HIS Implementation Process and the Factors	340
7.1	Factors within themes emerged from the focus group and interview and their corresponding operational definition.....	348
7.2	The Population of the Study in the Public Sector	359
7.3	The Population of the Study in the Private Sector.....	360
7.4	The Population and the Sample Size that was Calculated for the Public Sector.....	362
7.5	The Population and the Sample Size that was Calculated for the Private Sector.....	363
7.6	Questionnaire Response Rate in the Public Sector.....	365
7.7	Questionnaire Response Rate in the Private Sector.....	365
7.8	The Participants Gender in the Public Gender.....	367

7.9	The Participants Gender in the Private Gender.....	368
7.10	The Participants Age in the Public Sector.....	368
7.11	The Participants Age in the Private Sector	369
7.12	The Participants Nationality in the Public Sector.....	369
7.13	The Participants Nationality in the Private Sector.....	370
7.14	The Participants Level of Education in the Public Sector.....	371
7.15	The Participants Level of Education in the Private Sector.....	371
7.16	The Participants Arabic Language Proficiency in the Public Sector	372
7.17	The Participants Arabic Language Proficiency in the Private Sector.	373
7.18	The Participants English Language Proficiency in the Public Sector.....	373
7.19	The Participants English Language Proficiency in the Private Sector	374
7.20	The Participants Number of Years in Current Work in the Public Sector.....	375
7.21	The Participants Number of Years in Current Work in the Private Sector.....	375
7.22	The Participants Job Positions in the Public Sector.....	376
7.23	The Participants Job Positions in the Private Sector.....	377
7.24	Number of patients in an average/week in the Public Sector.....	378
7.25	Number of patients in an average/week in the Private Sector.....	378
7.26	Number of Years of HIS Usage in the Public Sector.....	379
7.27	Number of Years of HIS Usage in the Private Sector.....	380
7.28	Overall Attitude towards Using Computers at Work.....	381
7.29	Overall Attitude towards Using Computers at Work.....	382
7.30	Training classes attended in the Public Sector.....	383
7.31	Training classes attended in the Private Sector.....	383
7.32	Perceptions Regarding Organisational Factors in the Public Sector (MOH).....	385

7.33	Perceptions Regarding Organisational Factors in the Public Sector (Al-Amiri Top Management).....	386
7.34	Perceptions Regarding Organisational Factors in the Public Sector (Al-Amiri End users).....	399
7.35	Perceptions Regarding Organisational Factors in the Private Sector (Al-Mowasat Top Management).....	403
7.36	Perceptions Regarding Organisational Factors in the Private Sector (Al-Mowasat End Users).....	405
7.37	Perceptions Regarding Cultural Factors in the Public Sector (MOH).....	409
7.38	Perceptions Regarding Cultural Factors in the Public Sector (Top Management at Al-Amiri).....	409
7.39	Perceptions Regarding Cultural Factors in the Public Sector (Al-Amiri End users).....	409
7.40	Perceptions Regarding Cultural Factors in the Private Sector (Al-Mowasat Top Management).....	411
7.41	Perceptions Regarding Cultural Factors in the Private Sector (Al-Mowasat End users).....	411
7.42	Perceptions Regarding User Satisfaction Factors in the Public Sector (MOH).....	414
7.43	Perceptions Regarding User Satisfaction Factors in the Public Sector (Top management at Al-Amiri).....	415
7.44	Perceptions Regarding User Satisfaction Factors in the Public Sector (End Users at Al-Amiri).....	416
7.45	Perceptions Regarding User Satisfaction Factors in the Private Sector (Al-Mowasat Top Management).....	418
7.46	Perceptions Regarding User Satisfaction Factors in the Private Sector (Al-Mowasat End Users).....	418
7.47	Public Sector Perceptions Regarding the Most Important Factors Influencing HIS Implementation.....	419
7.48	Private Sector Perceptions Regarding the Most Important Factors Influencing HIS Implementation.....	420
8.1	Comparison between Public and Private Top Management in Relation to Demographics.....	450
8.2	Comparison between Public and Private End Users in Relation to Demographics.....	451
8.3	Comparison between Public and Private Top Management Answers in Relation to Organisational Factors.....	453
8.4	Comparison between Public and Private End Users Answers in Relation to Organisational Factors.....	454

CHAPTER ONE

INTRODUCTION

This chapter is divided into eight introductory sections. The first section presents an overview of the background to the research study's subject. The second section introduces the topic of Hospital Information Systems, whilst the third section locates broader issues in Information Systems Implementation research that are relevant to the study. The fourth section then presents the central topic of this thesis: namely, the problems surrounding the implementation of the Health Care Delivery System in Kuwait. The fifth and sixth sections spell out respectively the research study's aims and the questions it seeks to answer. This is followed by a section on the anticipated impact of this research study, and, finally, a summary concluding the chapter's contents.

1.1 Overview

Kuwait is a relatively small, wealthy country with a population of 2,041,961 (Ministry of Planning, 2002). Immigrant and expatriate workers constitute 65.4% of the total population. In Kuwait, as in other countries, health care services occupy an important and significant position amongst the decisions made by the government.

In Kuwait, health care and treatment is provided for all citizens and expatriates free of charge or at nominal cost. Approximately 7% of Kuwait's

the gross domestic product (GDP) is expended annually on healthcare. This compares with to 6.9% in UK, 13% in USA, 4% in Saudi Arabia, 5% in Egypt, and 3% in Lebanon (World Health Organisation, 2002). The per capita per annum expenditure of the Kuwaiti government on health was 165 KD (£262) in the year 2000 (Ministry of Health, 2002). This compares with £1000 in the UK, and £2497 in the USA (Smith & Nephew sustainability report, 2003).

Acknowledging the increase in medical knowledge and the need to contain increasing medical costs (Blois, 1986), health authorities are searching for an optimal way to utilise medical knowledge at an affordable cost for the population. In developed countries today, it has become essential to find an efficient means to manage and retrieve medical data and information to aid practitioners in their duties. Consequently, in many developed countries, the medical community has turned to computers and information science systems such as the Integrated Medical or Health Information System (HIS) to solve the problem of managing medical information and the ensuing data explosion.

Today, this application of computers in the medical field ranges from data collection to medical diagnosis (Blois, 1986; Javitt, 1986). This discipline is called Medical Informatics¹. In the Kuwaiti Health Care Delivery System (HCDS) there is local pressure to improve the quality of health care while

¹ According to Greenes et al (1990) "Medical informatics is the field that concerns itself with the cognitive, information processing, and communication tasks of medical practice, education, and research, including the information science and the technology to support these tasks".

containing health care costs. An HIS is a tool that has the potential of an improving or achieving better quality² of care while aiding in cost control. With the rapid technological development in Medical Informatics and the use of HIS, considerable interest in the potential of an HIS has been expressed by health care authorities in the Kuwaiti Ministry of Health (MOH).

The MOH in Kuwait has made three attempts in recent years to implement HIS in the public sector HCDS. However, these attempts have experienced several problems. Although there were many plans for HIS implementations, only a few were attempted, and no attempt has yet been completely successful (Shah et al., 1996; Shah, 1998; Al-AbdelHadi, 2000; MOH, 2002). The reasons for these failures in the public sector have yet to be investigated. In the private sector hospitals, HIS implementation has also been attempted recently.

This study was conducted to identify the various factors affecting successful implementation of HIS in both the public and private HCDS.

1.2 Overview of a Hospital Information System (HIS)

There is no standard definition of a Hospital Information System (HIS). Different authors define different aspects of it in different ways. To complicate matters further, some authors define this term to fit the emphasis of

² According to Johnson et al (1989) "Quality is the total set of features and characteristics of a product or service that define its ability to satisfy stated or implied needs".

the author's writings. Some authors use the term "Medical Information System (MIS)" when talking about HIS.

Shortliffe et al (1990) state that:

"The purpose of a hospital information system (HIS) is to manage the information that health professionals need to perform their jobs effectively³ and efficiently⁴".

Although the terms HIS and MIS are often used interchangeably, MIS emphasises the patient care components for individual patients. In the current study, an MIS will be defined as a computer system that implements and supports a 'Computer-Based Patient Record' defined by the Institute of Medicine Committee (USA) to be "an electronic patient record that resides in a system specifically designed to support users by providing accessibility to complete and accurate data, alerts, reminders, clinical decision support systems, links to medical knowledge, and other aids" (Dick et al., 1991). As regards an HIS, the thesis will use Cobler's (1984) definition, which defines HIS as "a system in a hospital that collects data and transforms it into information". This is a broader definition that includes MIS as one part of HIS.

³ Effective: "Achieving a desired result. Effectiveness is often associated with institutional values" (The PDMA, 1996).

⁴ Efficient: "Minimising waste or effort. Efficiency is distinguished from effectiveness. Rarely are efficiencies encouraged "At all costs", instead being balanced with risk and cost. Efficiency is often the result of the continuous improvement of processes" (The PDMA, 1996).

The literature shows that there are different models of HIS. One of the most comprehensive models was proposed by Friedman et al (1987). They describe the structure of a practical model of a Hospital Information System (HIS). This model includes the following modules: 1) core application modules that perform or assist with basic hospital functions; 2) business, managerial, and financial modules that perform or assist with traditional financial functions; 3) communications and networking modules that allow and facilitate communication amongst all resources; 4) departmental-management system modules that assist in the managerial process in order to manage, plan, and improve efficiency; 5) medical documentation modules that perform standard traditional manual functions by automating order entry, reporting results, and documenting and retrieving medical data; and 6) medical support modules that perform or assist in the process of data interpretation and decision making.

The main advantages of an HIS include improvements at management, clinical, and production levels in an organisation (Friedman et al., 1987). At the management level the HIS helps to aid managers in conducting strategic planning, and technology assessment. It also aids them in assessing the level of risk associated with adding new services, technologies, and facilities, or in modifying or eliminating existing services. At the production level, the HIS can lead to better utilisation of resources through computerisation. It provides automated staffing and scheduling and an appropriate supply of equipment and materials based on patients' needs. Also, the HIS can contribute to better

communication, thereby reducing the waiting time for orders, information, and results, and eliminating of unnecessary services (Shortliffe, 1976).

In general, then HIS can aid in : 1) speeding up communications; 2) eliminating or reducing redundant data or procedures; 3) minimising error rates by setting entry and verification rules for users entering the data; 4) organising data to aid decision making for diagnosis and therapy; and 5) it can play a role in auditing clinical activity.

On the other hand, there is much in the way of potential for unintended, possibly dysfunctional consequences that the implementation of HIS can trigger (Goldstein et al., 2002). Ash et al (2004) stated that:

“Professionals could trust the decision support suggested by the seemingly objective computer more than is actually called for (Weizenbaum, 1976; Burnum, 1989). Also, HIS could impose additional work tasks on already heavily burdened professionals (Berg et al., 1999; Massaro, 1993) and the tasks are often clerical and therefore economically inefficient (Tenner, 1996). They can upset smooth working relations and communication routines (Coiera, 2000; Dykstra, 2002). Also, given their complexity HIS could themselves contain design flaws ‘that generate specific hazard and require vigilance to detect’ (Shojania et al., 2002; Effken et al., 2002). As a consequence, HIS might not be as successful in preventing errors as is generally hoped. Worse still, HIS could actually generate new errors (Weiner et al., 1999; Bates et al., 2001; McNutt et al., 2002)”.

Clearly, then, any evaluation of the success of HIS implementation needs to take into account both benefits and disadvantages, at both a system-wide level and at the level of individual users.

As regard the situation in Kuwait, the literature indicates that HIS implementation is an organised effort, directed toward diffusing appropriate information technology within the user community (Randolph et al., 1990). It is believed that HIS implementation is a process that creates and introduces change.

1.3 Information System Implementation Research

In the field of information systems (IS), numerous studies have been carried out focusing on the assessment of implementation methodologies on four levels: namely, individual; group; organisational and inter-organisational levels. Research at both the individual and group levels explores the factors that control the process of accepting and adopting the technology among individuals or groups (Lorenzi et al., 1997; Li, 1997; Downing, 1999). On the other hand, research at organisational and inter-organisational levels examines the diffusion process of technological innovation in the organisation and beyond (Vincent, 1997; Kaplan, 1997a; Ash, 1997a; Lucas, 1992; Lorenzi, 2000). Moreover, different research questions will yield different research methodologies. The studies tend to analyse three main lines: normative, factor, and process. The normative approach explores the problems and difficulties encountered during the implementation process. However, these studies are often incomplete in their description or characterisation of the problems, as well as in proposing a

methodology to follow in order to achieve a successful implementation (Ginzberg, 1978).

A great deal of studies has been based on the interaction between technology, people, tasks, and organisational structure (Kaplan, 1997a). Abundant research activity has also been conducted to try and draw a better conceptual image of IS implementation, with the aim of raising the level of competence and efficiency of the institutions and organisations. The literature includes IS implementation case studies (Charles et al., 1997; Bagley et al., 1999; Payton, 2000), as well as discussions of problems, or success and failure factors (Paliva et al., 1995; Sarinen. 1996; Ash, 1997 a; Charles et al., 1997; Jiang et al., 1999; Southon et al., 1999; Hwang et al., 1999; Lorenzi et al., 2000). In addition, other studies emphasise the role of user satisfaction (Downing, 1999).

The continuous advancement of information technology (IT), especially in the healthcare environment, has led IT, healthcare, and medical informatics researchers to apply other methods to the assessment of information systems. Ginzberg (1978) states that the objectivists use quantitative approaches, whilst subjectivists use qualitative approaches to their subject. A multi-method approach has also been formulated to assess information systems in a single site (Kaplan et al., 1988). However, to date, there has not yet been an empirical research study of information systems implementation that follows the

suggestions by Newman (1994), and stems from the political consequences of the system failure and the competitive value of success.

In the 1960s and 1970s many IS's were unsuccessful and were unable to reach their goals. This drew the attention and interest of Lucas (1978), who began to study the implementation of the technology. Wetherbe (1988) supported and understood the complexity and importance of IS implementation, and he emphasised that "Unfortunately, one of the least understood and most overlooked issues of information system is implementation" (Wetherbe, 1988:237).

Researching the adoption and diffusion of new trends in IT in healthcare organisations, and in other organisations in various fields, is an important and crucial task, as the process of implementing IT is complex and consumes a substantial amount of time, effort, and money. Moreover, the risk of failure is reported as 30% or greater in cases of implementation of "large-scale information systems" (Charles et al., 1997). In an attempt to lower the risk involved in implementing of complex healthcare IT systems, many healthcare organisations have turned to software package solutions (Lucas, 1992; Charles et al., 1997; Schneider, 1998). This method of IS implementation necessitates, beforehand, a complete and thorough exploration of the available software development market. In theory, this should ensure that, in the long run, a reliable, robust system implementation will take place, leading to user satisfaction as well as achieving a continuum of care, leading

to full system utilisation and involvement. However, Martin (1984) has addressed the issue of the lack of a secure environment in the IT implementation process. He writes:

“CIO magazine and others have been writing about “Client/Server” for a couple of years. First they were full of “Silver Bullet” stories, usually based on reports from technology salesman about the success of IT projects, which were (supposedly) nearing completion. More recently, they have been filled with the horror stories of projects gone wrong through choice of technology vendor/product and lack of common sense management, now even the business press is clearly on the bandwagon. It’s difficult to know what the reality is, in large part because that reality is constantly shifting” (Richard, 1994:12).

From the above statement we can conclude that many organisations have faced and are still facing many barriers and obstacles with their information systems implementation schemes. Melville (1977) and Lorenzi et al (2000) reported that many investigators believe that most implementation problems are related to behaviour rather than to technology, because introducing a new IT technology into an organisation means creating change (Kaplan, 1997a; Kissinger et al., 1996). This requires good technical and organisational skills that should be provided by the existing environments—internal and external— of the system.

Clearly, then, the complexity of healthcare IS necessitates requires an in-depth systemic approach to implementation, so as to ensure the effective introduction of IT to the healthcare sector.

1.4 A Statement of the Problem

High quality data are considered to be a key component in decision making at all levels of health care (Wyatt, 1995). Adopting systems to provide the data and information that are necessary to the decision making process is becoming essential in today's competitive health care environment.

In 1991, the Kuwaiti MOH focused on introducing HIS to different health care facilities. These plans were introduced in an attempt to address different challenges the ministry had faced for almost two decades. These challenges included, most obviously, the massive destruction of the health care system by Iraqi forces, which was estimated to be approximately 75% of the ministry's infrastructure⁵ (Al-AbdelHadi, 2000). Other challenges included over-utilisation of the ministry's services by non-nationals, uncontrolled dispensing of MOH medication to non-nationals, and absence of accreditation systems for hospitals. Since no study was ever conducted to evaluate the HIS implementation process in

⁵ Dictionary of Economics by Rutherford (1992) defined the term infrastructure as "The basic services or social capital of a country, or part of it, which make economic and social activities possible by providing transportation, public health and education services, and buildings in which community activities can take place. Railways, airports, hospitals, schools, roads, sewage systems, and reservoirs constitute the major types of social capital. Countries with the poorest infrastructures are either those with low per capita incomes, i.e., the less developed countries, or those with governments practicing laissez-faire policies which seek to minimise the role of the state".

The McGraw-Hill Dictionary of Modern Economics (1983) also, defined the term infrastructure as "the foundation underlying a nation's economy (transportation and communications systems, power facilities, and other public services) upon which the degree of economic activity (industry, trade, etc.) depends The better and more complete a nation's infrastructure, the better and more effectively its economic activity can be carried on".

Kuwait, or to investigate the factors affecting the success of the implementation process, the idea to conduct this study arose.

1.5 Aim of the Study

The aim of the study is to identify and describe the factors that have previously affected and may affect the success of future HIS implementation in Kuwait's HCDS as perceived by the concerned stakeholders⁶ in both the private and public sectors.

1.6 Research Study Questions

The following are the research questions used in the current study.

Question One (Q1): Based on the literature review, what are the factors that affect HIS implementation success in Kuwait's HCDS (i.e. public and private sectors)?

Question Two (Q2): What are the stakeholders' perceptions of the factors affecting the successful implementation of HIS in Kuwait's HCDS (i.e. public and private sectors)?

Question Three (Q3): How can we use the results of the study to improve future HIS implementation?

⁶ A definition of stakeholders by AbdelHak et al (1996:12) as follows: "Health care stakeholders have a vested interest in the organisation. More specifically, they are the individuals, groups and organisations who (1) have a stake in the decision and (2) may attempt to influence those decisions and actions".

1.7 Research Study Impact

This study will hopefully be significant by providing insight into overlooked factors that influence hospital HIS implementation in Kuwait. It is hoped that the outcome of this study will enrich the research literature on implementation research literature with a new and reliable evaluation of factors that may affect the success of HIS implementation. It is also hoped that it will provide some principles that can be used by healthcare organisations and decision makers on the path to HIS implementation. Successful HIS implementation would be expected to bring benefits to patients, management, physicians, and other health care providers through more effective and efficient communication and administrative processes.

1.8 Summary

HCDS in Kuwait faces different obstacles during HIS implementation. The success of such systems is dependent upon many factors. Such factors must be identified and considered to ensure successful system implementation. Since the need to provide a HIS is appreciated in Kuwait, and has been attempted, albeit unsuccessfully, this study was planned to identify possible factors affecting successful information systems implementation in Kuwait.

The next chapter provides a description of different aspects of Kuwait as a state and a society. It also gives a description of the Kuwaiti HCDS, and the history of HIS implementation within it.

CHAPTER TWO

THE KUWAITI HEALTH CARE DELIVERY SYSTEM

This chapter is divided into three sections. The first section provides a description of different aspects of Kuwait as a state. The second section is devoted to giving a sociological perspective on Kuwaiti society. Section three describes the Kuwaiti HCDS, and gives a brief overview of the history of HIS implementation within the Kuwaiti health system. The chapter ends with a conclusion, which also serves as an introduction to the following chapter.

2.1 Section One: The State of Kuwait

2.1.1 Location. The state of Kuwait is situated in the Middle East region, with a strategic location at the head of the Arabian Gulf (Persian Gulf), between Iraq and Saudi Arabia, (see Figure 2.1). Kuwait's total area is 17,820 sq km (CIA, 2001).

2.1.2 Economy. Prior to the discovery of oil, the economy of the country was based on three main resources: pearl fishing, agriculture, and trade. Pearl fishing was initially the most important, but is currently in a state of declined because of the Japanese cultured pearl industry.

Before the oil crisis in 1973, the price of oil was relatively low. As a result, no major capital investments were made (Kubursi, 1984). Beblawi states, "Early at the beginning of the century, the oil barrel cost about \$1.20 in the US.

By 1970 it was only \$1.69 a remarkable stability with no parallel in recent history” (Beblawi, 1984:4). After the oil crisis until 1979, the official oil price fluctuated between \$34 and \$45 per barrel, generating high revenues for the Arab Gulf States.

Kuwait exports 90% of crude oil and refined products to Asia and Western European markets. On the other hand, Kuwait imports finished products such as appliances and vehicles from industrialised nations, particularly Japan, the United States, the United Kingdom, and Western Europe.

From the beginning, Kuwait realised that oil revenues would not serve the country’s financial and economical needs forever. The strategy the government adopted was to concentrate on building long-term industries, both oil- and non-oil based. The size of the country, along with a developed education system, has helped create these industries (Beblawi, 1984).

Since the mid 1990s, Kuwait has been heavily involved in industrial cooperation with other wealthy Arab Gulf States. In addition to industry, the country’s long term plan is to develop banking, telecommunication, trade, and other expertise and services that do not exist in the other Arab Gulf States. Development projects are underway and other services are planned. It is thought that the use of foreign labour and expertise could help attain this objective. Therefore, international immigration to Kuwait and the consequent increase in population growth rates may play an essential role in the foreseeable future to

bridge the gap between the demand for manpower and its availability from the total population. Before the Iraqi occupation Kuwait had the distinction of having the highest per capita income in the world (Shah et al, 1996).

Kuwait provides its citizens (Kuwaitis and non-Kuwaitis) with health, educational, and retirement benefits (Shah et al, 1996). After the Iraqi occupation the economy improved moderately from 1994 to 1997, with growth in industry and finance.

2.1.3 Government in Kuwait. The state of Kuwait terms itself a constitutional democracy, with the constitution guaranteeing freedom of religion and worship, of individual liberty, and freedom of the press. It claims to embody the positive aspects of both presidential and parliamentary systems prevalent in democratic societies (Spasted, 1980).

The constitution outlines the structure of the Kuwaiti political system, which is organised into four major institutions:

1. The Head of State (the office of the Amir)
2. The Legislature (the National Assembly)
3. The Executive Branch (the cabinet and administrative departments)
4. The Judiciary

Executive authority is vested by the Amir. It is exercised by the cabinet of Ministers, which is headed by the Crown Prince. Legislative authority is vested

jointly in the Amir and the National Assembly of fifty members, who are elected through a direct secret ballot. The right to vote is accorded to Kuwaiti males who are 21 years or older. Although there is a strong movement for giving the right to vote to women, at this time males alone enjoy this right. Judicial authority in Kuwait is exercised by the courts in the name of the Amir (Khalaf, 1984).

The constitution covers the State and system of government, the basic concepts of Kuwaiti society, general rights and duties, authorities, and general and provisional statutes. It protects all citizens against discrimination on the grounds of race, language, and social origin.

The state of Kuwait follows a free economic system in which government fiscal policy plays an important role. However, the private sector makes a major contribution to the economy of the State. Perhaps the most significant positive feature of the government in Kuwait is its ability to broadly distribute the wealth of the country on Kuwaitis. Certain essential consumer commodities, which are made available through co-operatives, are subsidised by the State, as is the case with the supply of electricity and water. Likewise, the State ensures the support of Kuwaiti citizens with disabilities or illness, as well as of the elderly. Education and health care services are provided to Kuwaiti citizens without charge (Naim et al., 1986).

2.1.4 Historical Development of Kuwaiti Society. The state of Kuwait is approximately 300 years old. It came into existence when the Al-Sabah family moved to the region, along with some other families from Saudi Arabia.

Historically, Kuwaiti society has been free from social distinctions as they may pertain to race, caste, and other sociological factors which divide societies into different segments. Further, Islam as a faith does not allow social distinctions in general and social isolation in particular. However, Kuwaiti society was historically comprised of three clusters.

The first of these represented the Royal Family, and the second group was comprised of some of the wealthiest families, who were predominantly merchants and traders. These wealthy families ranked next to the royal family and enjoyed considerable political influence, as the ruler consulted them for major decisions related to state affairs. The merchant class was distinguished by kinship relationships and intermarriages. Within the hierarchical framework of the merchant class, there were those who were much closer to the royal family, and then there were those who were captains of various ships that were used in trade. "Below these levels were the office clerks" (Al-Naqeeb, 1978:264). The third cluster was comprised of the large working class, which included fishermen, pearl divers, sailors, shipbuilders and general labourers (Shehab, 1964:461). However, with the discovery of oil and the massive wealth accumulated by the society over the last four decades, the labouring class has literally disappeared because of the extensive welfare services provided by the government. The jobs historically performed by the labouring classes among Kuwaitis are now carried out by immigrant workers.

The social stratification that existed prior to the discovery of oil did not have a significant middle class. But with the discovery of oil, one major noticeable change in the social stratification was the emergence of a large middle class. The bureaucratic, small businessmen and middle management personnel predominantly come from this middle class. Another class which is a recent phenomenon is comprised of skilled expatriate workers. Most of these came to Kuwait when the major developmental efforts began in the early 1970s.

Another milestone in Kuwait's history pertains to the Constitution, which was written and adopted in 1962, the year Kuwait got its independence from British control. The National Legislatives Assembly was also established in 1962. The National Assembly has 50 directly elected, male members. To date only male Kuwaitis have the right to vote. Parliamentary representation, scholars agree, has provided a boost to the middle class (Salih, 1991:54).

2.1.5 Labour Force. Rapid growths in oil production and per capita revenues, beginning in the mid-1950s, have resulted in Kuwait being in the forefront of economic development among the Arab countries of the Arabian Gulf, for the past two decades (Al-Refaei et al., 1992). As a result of the rapid growth of the economy, new divisions of work were created. The manpower needed to fill these divisions led the government to adopt an "open door" policy for non-Kuwaiti labourers. Most less developed countries suffer from an abundance of labour and a shortage of capital. The situation in Kuwait is almost uniquely reversed. In 2002, Kuwait had a total population of 2,041,961. Of that,

34.6% were Kuwaitis and 65.4% were non-Kuwaitis (Ministry of Planning, 2002). This is a result of rapid expansion of the national economy, which has required an additional workforce.

Figure 2.1: A Map of the State of Kuwait



Like other Gulf States, Kuwait has long claimed that the use of an expatriate workforce is merely a temporary phenomenon. However, the fact that Kuwaitis represented little more than a fifth of the workforce in 1980, and are

projected to be just under a quarter of the labour force in 1990, clearly suggests a long-term dependence on foreign labour (Shah, 1986). Farah (1983:43) identified “push and pull” factors as instrumental to the large-scale labour migration to Kuwait. The push factors include the high surplus-labour conditions in many of the surrounding countries. On the pull side are the attractive wages, well-developed social services, the abundance of consumer goods, and Kuwait’s political tolerance.

In discussing the labour force in Kuwait, Alessa (1981) indicates that numerous Kuwaitis refuse to do any manual work because of its lack of prestige. Most Kuwaiti prefer professional, managerial, and governmental jobs. Thus there is a general imbalance in the distribution of the labour force in Kuwait. Most of the Kuwaiti labour force is concentrated in the governmental sectors (91.3%), while the private sector has only 6.8% with the joint sector accounting for 1.9% (Ministry of Planning, 2002).

In the light of the more challenging situation now facing Kuwait, as a result of the war with Iraq in 1990 and the subsequent liberation, followed by the successful but expensive effort to rebuild the country quickly, several studies have been conducted to improve the workforce situation. Studies of the World Bank’s Economic Memorandum (1995), the National Five Year Plan (1996), and the Kuwait Government Civil Service Commission’s Report on Resolving Overlaps (1992) have addressed a wide range of issues related to

the personnel system in the public sector. These studies identified the following problems:

- An inadequacy in the government's staffing system with respect to job placement and interagency co-ordination;
- Excessive concentration of decision-making authority, and confused distribution of functional responsibilities; and
- De-motivating characteristics of the civil service system with respect to promotions (which are based solely on education and seniority level), and an absence of correlation between pay and productivity.

To address personnel system problems, the studies recommended enhancing the status, role, and responsibilities of the Civil Services Commission, modifying policies and practices for hiring, promotions, job classification and grade classification, introducing performance criteria into the promotion system, putting incentive systems in place to increase productivity, applying market value as a reference for salary, and a remuneration scheme based on the principle of equal pay for work of equal value. Recommendations for developing a human resources strategy and determining long-term workforce requirements (particularly for the health sector) included optimising human resource utilisation through a national promotion campaign, and promoting the training and education of youth and the participation of women in the workforce.

2.1.6 The History of HCDS in Kuwait. The history of health care services in Kuwait dates back to the early 1900s. In October 1904, the American Mission at Kuwait established the first clinic and appointed the first clinic and appointed the first physician. Before that date, the Kuwaiti population used Arabic and traditional medicine and remedies, in which herbs are primarily used for healing (Al-Jarallah, 1996).

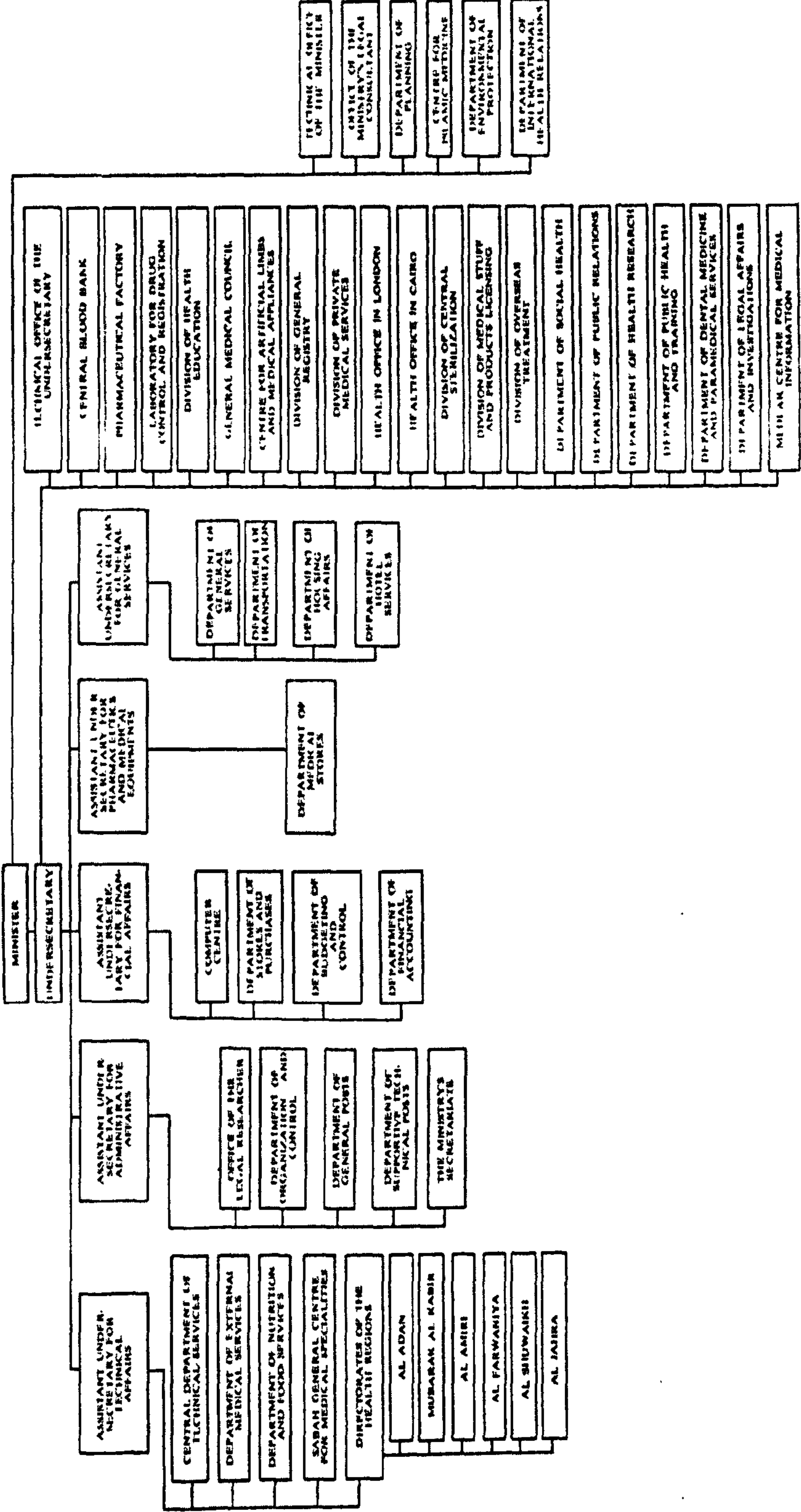
In 1914, the American Mission established the first hospital in Kuwait, named “The American Hospital”. Following that, in 1920, the American Mission established a Women’s Hospital. Those two hospitals were the only hospitals serving the people of Kuwait until the late 1940s. In 1949, two additional hospitals were opened: Al-Amiri and the Psychiatric hospital. Following that, different hospitals with different specialties were established, including a Maternity Hospital in 1961, and the Infectious Diseases Hospital and Al-Sabah Hospital in 1962 (Naim et al, 1986, Al-Jarallah, 1996). Around the same time, a Ministry of Health (MOH) was established and the HCDS gradually started to take the shape that it has today. Table 2.1 shows the number of the various health care facilities that serve Kuwait today.

2.1.7 The Ministry Of Health (MOH). The Ministry of Health (MOH) is the superior authority that controls both the public and private sectors. The MOH decides the country’s health and medical priorities and sets policy.

Administratively, a Minister, who is a political appointee (Figure 2.2), heads the Ministry of Health. The Minister of Health can be a member of the National Assembly, or someone who is not a legislator and is appointed on the recommendation of the Prime Minister, with the expectation of the Crown Prince and the heir-apparent to the Amir. The Ministry's executive head, who is called the Under-Secretary, is generally a medical doctor with considerable experience. The Under-Secretary is assisted by 11 Assistant Under-Secretaries. Notable among these are the Assistant Under-Secretaries for Technical Affairs (who manage all medical care aspects), Financial Affairs, Allied Health Services, Dentistry Affairs, and Drug Control. Each Assistant Under-Secretary is responsible for a number of directorates, each of which is headed by a Director. Each directorate, it may be noted, is further divided into sections. Another important feature of the organisation of the MOH pertains to Health Regions (Districts).

The HCDS is divided into 5 health regions and each region is headed by a Regional Director and has a general hospital which provides primary health care. The speciality services are utilised through referral from the clinics or from the general hospitals to the speciality hospitals/clinics. The researcher examined the MOH organisation structure in order to identify stakeholders concerned with HIS implementation in chapter five.

Figure 2.2 Ministry of Health Organisational Chart



2.1.8 The Current Structure of the HCDS in Kuwait. In order to have a HCDS that is more accessible and decentralised, the policy planners in Kuwait have adopted the policy of regionalisation of the health care system. In principle, the system envisions the concept that a defined community or region should share the responsibility of defining its health problems and solving them.

Organisationally, this task is fulfilled through a general hospital to which a specific number of clinics (dispensaries and speciality clinics) are attached. In addition, each region is required to have a comprehensive preventative health programme and the requisite health promotion programmes (Naim et al., 1986).

The MOH identified six health regions (districts): Al-Sabah, Al-Amiri, Al-Farwaniyah, Al-Jahra, Mubarak, and Al-Adan. Each region provides for the comprehensive health needs of a population of 250,000 to 300,000.

The regional hospitals, also known as general hospitals, with a combined bed capacity of 2,431 beds in 2002, render secondary level health care, together with the ambulatory care services in the eight specialised hospitals, with a bed capacity of 1,994 in 2002. These hospitals offer referral- based tertiary level health care services to all residents of Kuwait (Stephen, 1992).

The bulk of the health services in Kuwait are provided by the MOH. However, curative services are provided by the private sector as well. Kuwait has 4 private hospitals and 3 oil company hospitals, as well as 21 dental clinics and 51 general medical clinics, all of which are private.

Table 2.1: The Various Health Care Facilities in Kuwait Today

Facility	Number
Public Care;	
General Hospitals:	6
Al-Amiri (408 beds)	
Al- Farwaniyah (462 beds)	
Al-Jahra (437 beds)	
Mubark Al-Kabir (370 beds)	
Al-Adan (505 beds)	
Al-Sabah (400 beds)	
Specialty Hospitals	12
General health care ctr.	85
Dental care	67
Maternal care	24
Child care	64
Preventive Care;	
Hospitals	4
General health care ctr.	51
Oil company hospitals	3
Dental clinics	21
Private sector;	4
Al-Mowasat (200 beds)	
Al-Hadi (150 beds)	
Al-Rashid (50 beds)	
Dar-Al-Shifa (180 beds)	

Source: MOH 2002

2.1.9 Health Manpower. In 2002, Ministry of Planning statistics showed that the total number of employees of MOH was 28,957. 47.5 % of these were Kuwaitis and 52.5% were non-Kuwaitis, distributed among the different departments and health care facilities in the Ministry organisation. In the Ministry, which is the superior authority, 90% of employees were Kuwaitis and 10% were non-Kuwaitis.

There are indications that the national policy of “Kuwaitisation” of in the public services is, to some extent, achieving its objectives. According to the statistics of the MOH, the percentage of Kuwaiti physicians working in the Kuwaiti HCDS (both public and private) increased from 23.3% in 1995 to 31.2% in 2002. Also, the percentage of Kuwaiti dentists and nurses increased from 26% and 10.4% respectively in 1995 to 28.1% and 12.8% in 2002.

However, the number of expatriate medical and paramedical staff in the MOH hospitals still exceeds the number of Kuwaiti staff. In 2002, the number of doctors working in the MOH hospitals was 3525: Kuwaiti physicians represented only one-third of this total number of physicians, whereas, Egyptian physicians formed the dominant nationality, with 39.4% of the total number of physicians. Indian physicians are the third largest group, constituting 7.0% of the total number of physicians. The percentage of Kuwaiti employees working in non-clinical jobs (administration) in MOH hospitals is 75%, while the percentage of non-Kuwaitis is 25%.

There are over seventy Arab, Asian, and European nationalities employed by the MOH. Egyptians represent one-third of the entire expatriate workforce sector: there are 4,711 Egyptian employees, representing 33.3% of the total expatriate workforce in the ministry. Indians form the second largest nationality, with 3,873 employees, representing 27.4% of the total number of expatriates. The Filipino workforce of 1,719 employees constitutes 12.2%. European manpower is the smallest sector among the nationalities, being 1.4% or 200 health professionals employed by the ministry.

2.1.10 Summary. Kuwait is a small, rich, and democratic country, with high export revenues owing to the oil industry, and, until comparatively recently, one of the highest per capita incomes in the world (Shah, 1998). Due to the nature of its economy, its demographics are such that the population of non-Kuwaitis exceeds that of Kuwaitis.

In accordance with these demographics, the health services rendered by the MOH rely heavily on expatriate manpower. Reviewing the manpower statistics in the MOH shows the extent of diversity of the nationalities of health care professionals. Therefore, an important conclusion to be drawn from these statistics is that studying how diversity affects organisational performance is an important adjunct to the maintenance of adequate staffing resources.

2.2 Section Two: Sociological Perspectives on Kuwait

2.2.1 Overview. Social stratification is quite important in Kuwaiti society. Additional attention has been devoted to the societal structure of Kuwait here, because the subject of this research has a strong connection with the norms and the traditions of this society. Furthermore, the conditions under which healthcare personnel, including the expatriate workforce have to function, have been included essentially to provide the optimal premises for the objectives of this study.

Therefore, this section presents a brief discussion of pertinent aspects of the sociology of Kuwaiti society. In this respect, some of the theories pertaining to social stratification are summarised briefly. Specifically, the historical development of Kuwaiti society is reviewed with reference to different social classes, followed by an account of the composition of the migrant workforce. Furthermore, selected social distinctions between Kuwaitis and non-Kuwaitis in the workplace are identified, and their effects on the administrative systems in the Kuwaiti HCDS are discussed.

2.2.2 Basic Theories of Social Stratification. Since ancient times, social philosophers have been concerned with economic, social, and political inequalities (Tumin, 1985). Most societies, from the simplest to the more complex, have some form of social inequality. In particular, power and prestige are unequally distributed between individuals and social groups (Owen, 1968). It is important to make the distinction between social

inequality and social stratification, which is a particular form of social inequality. It refers to the presence of social groups which are ranked one above the other, usually in terms of the amount of power, prestige, and wealth their members possess. Those who belong to a particular group or stratum have some awareness of common interests and a common identity. They share a similar lifestyle which, to some degree, distinguishes them from members of the other social strata. For instance, the Indian caste system is a living example of a social stratification system (Haralambos, 1985:25)

A number of theories of social stratification can be found in the literature. However, the functionalist, Marxian, and Weberian perspectives have historically been accorded higher recognition in western sociological studies.

When functionalist, such as Tumin (1985), attempted to explain systems of social stratification, they based their explanation on the frameworks of larger theories which sought to explain the operation of society as a whole. They assumed that there were certain basic needs or functional prerequisites which must be met if a society is to survive. These theorists therefore looked to social stratification to see how far it met these functional prerequisites. Furthermore, they assumed that parts of a society form an integrated whole, and thus they examined the ways in which the social stratification system is integrated with other parts of society. In brief, functionalists are primarily concerned with the function of social

stratification, and its contribution to the maintenance and well-being of a society (Haralambos, 1985:30).

Marx, on the other hand, viewed social stratification differently. According to his theory (Marx, 1961), social classes develop on the basis of the different positions or roles which individuals fulfil in the productive scheme of a society. Marxist perspectives emphasise social strata rather than social inequality in general (Tumin, 1985). The fall of the Soviet system some have argued, has diminished the value of the Marxist perspective. Nonetheless, its historical value deserves recognition.

The work of the German sociologist Max Weber represents one the most important developments in stratification theories (Haralambos, 1985). Like Marx, Weber views social class in economic terms. He argues that classes develop in market economies in which individuals compete for economic gain. Weber argues that the major class division is between those who own the forces of production and those who do not. In Weber's view any system of social inequality needs both material and moral support. Power, to be sustained, requires a legitimate basis in order to ensure that some might command, and that there would be others who could be counted on to obey (Owen, 1968:22).

2.2.3 Social Structure of Kuwaiti Society. In order to give a more in-depth understanding of the effect of culture upon health services organisations, it is necessary to describe some of the social characteristics of

Kuwaiti society. To that end, this section will briefly examine the character of Kuwaiti society and its basic social values in particular.

As observed earlier, three major social groups are recognised amongst Kuwaitis. However, a much broader and clearer distinction exists between the rural and urban groups. Today, Kuwait is essentially a city state, and each segment of the population has all modern amenities such as electricity, running water, sewage, air-conditioning and other essential services. Historically, however, a majority of Kuwaitis lived on what would then have been described as rural areas, and the population of these rural segments was divided into different tribes. Whilst urban society became divided into upper class families and lower class families, which mixed through intermarriage, the rural families remained divided into different tribes.

Islam, as the chief religion, plays a crucial role both in shaping Muslim Arab culture and as an underlying force. According to Islam beliefs, the family and society are far more important than the individual. It is from this historical perspective that an individual in an Arab society owes his well being to the strength of his community or society. While Islam not only allows but encourages freedom of expression, it requires its followers to abide by certain agreed principles. Contrary to western democratic norms, in which a majority always carries the day, a Muslim community is always supposed to follow those who are righteous and to adhere to the dictates and ordainments of God, even if they are in the minority. From this perspective, the role of the

community and society outweighs individual freedom. An individual in an Arab culture is supposed to carry out the decisions of the community or the society. However, it is important to note that a decision-maker or an administrator in Islam, like in other monotheistic religions, is supposed to be impartial and objective in assigning jobs or distributing benefits.

In Arab culture, mutual co-operation between families and groups is imperative. The traditional principles of loyalty and responsibility to the family or the community ensure that individual interests are subordinated to those of the family or the community. In such a social arrangement, an individual receives family or community support and security in return for his loyalty and services to the community. Thus, kinship becomes a powerful source of potential power, which other expatriate groups do not often share.

Kuwaitis and non-Kuwaitis have their distinct cultures, languages, and traditions, but they all have to mix together in the work environment, where in most cases the expatriates outnumber the Kuwaitis. Outside of the workplace, however, the Kuwaitis and non-Kuwaitis segments of the population are separated in terms of areas of residence. Kuwaiti laws do not permit any expatriate to buy property in Kuwait, unless it is for the residents of the Gulf Co-operation Council countries. The Kuwaitis themselves can also be viewed as living in different categories of residential areas, because residential areas are broadly divided into three types. First, there are single family dwellings which are usually owned by affluent Kuwaitis. Then there are middle income

and low income houses or apartments for Kuwaitis. A number of rich Kuwaitis also own apartment complexes which they rent to non-Kuwaitis.

Al-Khras (1982) observes that factors such as the temporariness of migration, the low degree of social interaction between Kuwaitis and non-Kuwaitis, and the social disparity between different sections of the society, are all likely to lead to low worker morale. Such conditions are also likely to lead to an absence of social cohesion within society, and at times a growing hostility among its various sectors. Al-Khras further contends that the beginnings of social conflict are rooted in the feelings of certain social groups who perceive that they are underprivileged, and exploited by other groups.

2.2.4 Composition of Migrant Workforce. As mentioned previously, the population of Kuwait is estimated to be 2,041,961. Of that number, 34.6% are Kuwaitis and 65.4% are non-Kuwaitis (MOH, 2002). The non-Kuwaiti population is divided into the following major ethnic groups: non-Kuwaiti Arabs, Asians, Africans, Europeans, North Americans, South Americans, and Australians. Among the non-Kuwaiti Arabs, the Egyptians are the main group, comprising approximately 20% of the total expatriate population, followed by Syrians (6.8%), and Lebanese (2.5%). The other Arabs constitute relatively smaller proportions of the population. Among the Asians, the largest group is represented by Indians, who comprise 19% of the total non-Kuwaiti population, followed by SriLankans (12%), Bangladeshis (10%), Pakistanis (7.2%), Iranians (5%), and Filipinos (3.6%) (MOH, 2002).

Social interaction among these different ethnic groups has been a subject of study for a number of years. Al-Ostad (1986) contends that the various ethnic groups in Kuwait are viewed as contributing towards a pluralistic society rather than a “melting pot”. This, he argues, is mainly due to government policies, which separate residential areas for Kuwaitis and non-Kuwaitis. While the different ethnic groups have their own social organisations, the social interaction between Arabs and non-Arabs is somewhat limited.

2.2.5 Social Distinctions at the Public HCDS.

2.2.5.1. Social Influence and Power Distribution. Non-Kuwaitis are not considered to be part of the administration or of society, because they do not have the right to vote or to join any labour unions, occupational groups, or even sports clubs as active members. Even in government departments it is very rare to find Kuwaitis and non-Kuwaitis sharing the same office. Usually Kuwaitis occupy individual offices, and non-Kuwaitis occupy the smaller rooms. The interaction among Kuwaitis and non-Kuwaitis in offices is generally limited to official work. However, in academic settings and hospitals, relatively closer and freer interaction is observed, although the Kuwaitis generally believe in and assert their superiority over non-Kuwaitis in most work settings. Another pertinent aspect of societal interaction pertains to the differences that exist between Kuwaitis. Most Kuwaitis who have a rural background believe that they owe their allegiance to their tribe. However, if a

situation arises in which there is a difference between a Kuwaiti and non-Kuwaiti, all the Kuwaitis will put aside their differences and unite as one person. Finally, some expatriates have been granted Kuwaiti citizenship, but despite their citizenship they do not enjoy a social status equal to that of Kuwaitis, because such people are viewed as “second class” Kuwaitis and generally remain somewhat isolated from the Kuwaiti community.

Kuwaitis are a minority in their own country, yet they possess the superior social positions. Non-Kuwaitis generally have a lower social status than most Kuwaitis do, but they nevertheless enjoy considerable control over the administrative machinery in the MOH hospitals, essentially because many of the middle management and most of the low-level employees are expatriates. However, the top managerial positions in the MOH are held by Kuwaitis, while the middle management positions are generally filled by non-Kuwaiti Arabs, predominantly Egyptians. Significantly, though, these latter positions are the ones which implement policy rules or regulations and establish procedures in the Kuwaiti system. Therefore, the administrative mechanisms wielded by the expatriates in general and the Egyptians in particular give them a more or less unique access to information about the running of the MOH. It is believed that they frequently keep this information to themselves, as a substitute for authority and even, perhaps, as a potential weapon. Consequently, middle management positions afford expatriates a

considerable alternative source of power. Consequently, middle management positions afford expatriates a considerable alternative source of power.

The lower level employees are generally Asians. Similar to the big gap between the Kuwaitis and the non-Kuwaitis Arabs, there is also a big void between the middle and lower management employees, the former being predominantly Egyptians and the latter being predominantly Asians. This has resulted in clearly marked social distinctions between these three classes of upper management, middle management, and the workers.

Much has been written about power distribution in stratified societies. Haralambos (1985) has given a comprehensive analytical account of power distribution. His literature review places emphasis on the works of Pareto (1963), whose regarding his theory on the process of social life states that in all societies two classes of people appear- a class that rules and a class that is ruled; Mills (1951), who observed that American society was dominated by the power elite; and Dahl (1973), who maintains that to discover the distribution of power within any society, one has only to examine the actual pattern of decision making. Thus, most of the principal works that discuss stratification within society support the pluralist position. However, there are other scholars who have seriously criticised pluralism. They contend that the pluralists ignore “non-decision making” a situation in which some are perceived to have the power to prevent some issues from reaching the point of decision. While the literature provides many arguments both for and against

the pluralist view, the situation in Kuwait is different, and rather more complex.

Kuwaiti society is dominated by two basic groups of people –Kuwaitis and non-Kuwaitis. The non-Kuwaitis do not have any meaningful, direct role in the decision-making process, and they are in effect subordinate to the Kuwaiti managers. However, within the Kuwaiti section of the population, as observed earlier, there is an elite which makes the major decisions and therefore controls the destiny of the society and its organisations. This means that the non-Kuwaiti population is inevitably subservient to more powerful indigenous strata within the society. A Kuwaiti employee, whether he is in a top management or middle management position, always has unhindered access to the most senior person in an organisation, who is always a Kuwaiti. This may not be the case for non-Kuwaitis.

Since most, if not all, non-Kuwaitis have migrated to Kuwait for the sake of money, their inherent desire is to please their Kuwaiti employer in order to maximise enjoy job security and sustain their income. This propensity to subjugate themselves for monetary gain weakens the expatriate socially. The majority of non-Kuwaitis, although highly competent in their professional training generally prefer not to take a stance which would put them in a position of competition with Kuwaiti supervisors and managers. Hence, this is a reason for non-Kuwaitis being socially disadvantaged. Leavitt et al (1973:751) contends that:

“A Kuwaiti’s ability to communicate directly with the Kuwaiti top hierarchy is helped, in large part, by other capacities, roles, and status, which they might possess within or outside the organisation. Kuwaitis, by virtue the influence they can exert in this way, enjoy a greater amount of job security, status, and authority”.

Our primary interest in this section, it may be recalled, was briefly to discuss the effect of social status on the distribution of power and influence. In conclusion, it is evident that the non-Kuwaitis have a lower social status in Kuwaiti society, that the Kuwaitis as an informal social group are more united than the non-Kuwaitis, and that the Kuwaitis hold more influential positions than non-Kuwaitis do in the administration.

2.2.5.2. Language Barrier. The official language in Kuwait is Arabic; therefore all executive and judicial decisions are passed and recorded in Arabic. All the official documentation in Government offices is also in Arabic. The only exceptions are the internal matters of some private companies which use English as the working language, or some academic faculties.

As mentioned earlier, Kuwait employs manpower from many countries. In the Ministry of Health, for instance, expatriates from more than seventy countries are employed. Since the language is Arabic, and a vast majority of the workers are from Asia, there are, inevitably, serious

difficulties faced due to language barriers. Whilst a full-scale study of these is beyond the scope of this study, it is worthwhile exploring the issue briefly.

A vast majority of nurses, radiographers, and medical laboratory technologists are from Asia, as are many of the medical doctors and dentists. The issues related to the language barrier are twofold. Firstly, the non-Arabic speaking patients may run into serious difficulties when they are being treated or provided with care from Arabic speaking staff. Similarly, Arabic speaking patients in general and the Kuwaitis in particular face many difficulties when they have to deal with doctors or allied health professionals who do not speak Arabic. Therefore quality of care, as it pertains to patient satisfaction, is often seriously hampered.

Another aspect of difficulties arising from language barriers stems from the fact that the middle management positions are generally held by non-Kuwaiti Arabs, predominantly Egyptians. Most of these workers have a very poor comprehension of the English language, and are therefore constrained to converse in Arabic. The non-Kuwaiti Arabic-speaking staff view this as a mechanism purposefully employed to use the Arabic language as a source of power, and a mechanism which enables the Arabs to withhold requisite information. These factors also create management difficulties for the health care delivery system.

2.2.5.3. Employment Policies. The government of Kuwait is committed to “Kuwaitisation” to the greatest extent possible. Specifically all

senior administrative positions in the public sector are supposed to be vested in Kuwaitis. Similarly, the middle management positions are accorded to Kuwaitis whenever they are available. Further evidence on discriminatory government policies towards non-Kuwaitis is pointed out by Khouja et al (1979:49):

“With government policies not allowing them to own real estate or company shares, they have not been able to participate fully in the fruits of increased economic prosperity. Hence a growing feeling of frustration and lack of belonging to the country in which they work and live has developed among them”.

Because of the obvious difficulties created by stratification and power differentials in the workplace, some attempts have been made to study the work environment of the expatriate manpower in Kuwait. For instance, Shah (1986), in her study on foreign workers in Kuwait, concluded that the level of commitment to national goals (of Kuwait) within such an environment is bound to be low, and the elements of frustration and labour alienation are likely to be high. The impact of such an environment on the indigenous labour force is bound to be negative, since social relations within the work situation are likely to be based on mutual hostility and mistrust, rather than on co-operation and trust.

Notwithstanding the policy of the Kuwaitisation of staff recruitment, the Ministry of Health, in its endeavour to employ qualified staff, recruits medical doctors, dentist, pharmacists, and allied health professionals from

wherever they can find them. There is a general understanding that the government does not want to employ staff from only a few selected countries. Such recruitment policies have political implications. Therefore, the government tries to maintain an optimal balance in employing people from various nationalities and regions. However, the presence of various nationalities which are potentially competing against each other, can contribute to further aggravation of the already hostile work situation (Shah, 1998).

2.2.5.4. Stress at the Workplace. Work-related stress is another contentious subject, and some employees face this factor more often than others. In particular, it was found during interviews and discussions with various supervisors and employees that the language barrier creates a certain amount of stress among some of the employees. This stress becomes particularly noteworthy when instructions are given by a supervisor who does not speak the same language as the employees does, and the employee does not have a proper comprehension of the language used by the supervisor. Similarly, the documentation of medical records may be deficient in the sense that many non-Kuwaiti Arab physicians do not carry out proper documentation, as their comprehension of English is quite weak. Furthermore, the pharmacists, most of whom are non-Kuwaiti Arabs, cannot, at times, give proper instructions to non-Arab patients. The stress felt by patients because of communication difficulties during nursing care is also noteworthy. This stress

was particularly relevant when an elderly Kuwaiti, who had no comprehension of English, had to be taken care of by a nurse whose Arabic speaking proficiency was weak. This and other such instances result in stress for the patients and for the care providers alike.

2.2.5.5. Perceived Role and Expectations. The expatriate employees, when they come to Kuwait, generally have only one major expectation, and that is to make as much money as possible in as short a time as possible. It should be understood that almost all the expatriate employees who work in Kuwait and other Gulf Co-operation Council countries do so mainly because they stand to make more money in these countries compared to what they make in their own. Various professionals, both Kuwaitis and expatriates, agree that a vast majority of the expatriates come to Kuwait only because this move gives a higher salary and a much higher margin of saving. This observation is particularly true for employees from third world countries. The expectation of the employees is to receive fair treatment in the workplace, and most of them expect that there will be no discrimination at work. However, in actuality language barriers end up being a serious source of perceived discrimination because of the reasons briefly set out above. Knowledge of language and culture makes it easier for migrant workers to convert their skills into earning capabilities (Al-Qudsi et al., 1991).

An additional area in which some expatriates feel rather deprived and discriminated against is the distinction of living environments, i.e., the

separate residential areas for Kuwaitis and non-Kuwaitis, which again has been mentioned above.

Finally, another factor worth noting pertains to the cultural aspects of Kuwaiti society. Kuwait is a Muslim Arab country, and the dress norms and social interaction modalities are rather different from those of European and America Asian employees, however, are often reasonably familiar with such cultural practices because, in their own countries, similar practices are also common, and hence they do not find a serious gap between their expectations and the reality.

As mentioned earlier, senior managerial positions in the workforce are generally occupied by Kuwaitis. Yet in a number of instances, expatriate employees have far better capabilities and much more experience than their Kuwaiti manager. This can often lead to a sense of alienation. During the interviews and discussions that were held with employees from various levels of health organisations, the subject of alienation frequently came into the discussion, and a number of professionals expressed openly that there is a considerable sense of alienation among health care workers in MOH.

In general, financial gains, most researchers agree, outweigh the discomforts and perceived inconveniences that stem from language barriers, cultural differences, and other such factors. However, there can be little doubt that such discomforts and perceived, both actual and perceived, may be irksome when they form part of the day to day experience in the workplace.

2.2.6 Summary. In Kuwait, social values and social structures are built around the family, on which all individual loyalties are focused. Consequently, each individual's interest is supposed to be secondary to the public interest. Bureaucracy is considered a reflection of society, and Kuwait's bureaucracy is what Stone (1977) called "A mix of autocratic and traditional systems with excessive emphasis on following the procedures".

The central question as to why the Kuwaitis have more influence than their non-Kuwaiti colleagues was analysed in the light of social and organisational structures, both formal and informal. It is worth re-emphasising that influence can depend upon factors other than the legal authority in an organisation. These factors can be from outside or from within the system itself. The outside factors generally derive from the differing social status that Kuwaiti and non-Kuwaiti employees command in society. In the case of non-Kuwaitis, it is clear that they have a lower class status in the society, while the Kuwaitis are far more united as an informal group than the non-Kuwaitis. This means that the Kuwaitis not only hold more influential positions than non-Kuwaitis in administration, they can also wield other kinds of power too.

The aim of Kuwaiti immigration policy has been, and continues to be, to maintain the transitory character of labour immigration in order to ensure that the migrants do not settle down permanently in the country. The rationale underlying this policy is that given their numerical superiority, immigrants have the potential to change the character of Kuwaiti society. Thus, it is a

concern for their own cultural survival, rather than a fear of migrants encroaching upon their newly gained material wealth that has guided Kuwait's treatment of the question of labour migration throughout the years. As a result, non-integration, rather than integration, was viewed as the basis for social stability. In carrying out this policy of exclusion, the Kuwaitis have consistently played on distinctive differences between the migrants and themselves, maintaining, reinforcing, and, when necessary, inventing such differences. The politics of exclusion have been mediated through various measures aimed at countering the integrative effects of time and interactive habituation. These measures have ranged from formal categorisation and legislation to informal customs and practices in everyday life, and the manipulation of cultural values and symbols (Longva, 1997:44).

This section has attempted to describe the Kuwaiti social environment, in order that one can better appreciate the impact of the social value system on Kuwaiti health managers and expatriate health professionals working in Kuwaiti hospitals. From this discussion of basic values, norms, and patterns of relations, one can begin to understand the interaction between the Kuwaitis and their social environment.

2.3 Section Three: Health Information Systems (HIS) in the Kuwaiti HCDS

The public sector and the private sector in Kuwait have each carried out different experiments with Health Information Systems (HIS). Accordingly, the public sector's experiment will here be discussed separately first, followed by a discussion of the private sector's experiment.

2.3.1 Definition of Public and Private Organisations. There are many similarities and differences between public and private organisations. The main conventional distinction between the private and public organisation is their ownership (Rainey et al., 1976). Private organisations are owned by stakeholders, whereas public organisations are owned by members of the political communities (Boyne, 2002). In addition, public organisations are funded by the government rather than by fees paid directly by customers (Niskanen, 1971). Furthermore, public sector organisations are controlled mainly by the political system rather than the economic system (Dahl et al., 1953).

In Kuwait, both sectors fall under the regulatory control of the MOH in terms of norms, performance standards, operations, and particularly the manpower components and qualifications. As regards HIS selection and implementation, the MOH is responsible only for the public sector.

2.3.2 The Public Sector's Experiment with HIS. In view of the importance of health information in health care, and an increasing number of patients, in 1979 the MOH in Kuwait decided to give a high priority to the establishment of health information system in its HCDS. For more than two decades, several modules of HIS were introduced in different hospitals within the Kuwait HCDS. The move toward implementing an HIS was a result of many factors and problems the ministry faced in the previous decades.

The medical record working party at the MOH identified problems in the medical record system and highlighted the need for implementing an integrated HIS. These problems included the following:

1. Duplicate medical records for some patients while other cases records were not being maintained for all patients. As a result, there was a lack of the clinical information that is needed for the patient treatment plan.
2. Absence of an effective chart tracking system, which resulted in delays in providing the medical records on time, thus affecting the care provided.
3. Insufficient medical documentation within patient records due to absence of standards for documentation. Each hospital followed their own rules and regulations for documentation, if they existed at all.
4. Illegible handwriting within the medical record.

5. Loss of lab and pharmacy forms, which resulted in increased patient stress, and putting patients through taking repetitive lab tests. In addition, different sizes of lab report forms increased the difficulty of filling in the medical record and the likelihood of missing data.
6. Data for research purposes were hard to access, due to time-consuming checks of fragmented patient records.

The first step in managing problems is to recognise the existence of such problems within the organisation. The MOH top management discussed different issues the MOH was considering currently. In an open discussion, the top management indicated that the ministry was working on strategic planning and solving problems such as lack of resources in the ministry. Other problems included lack of standards to measure performance of health care personnel, absence of accreditation programs to evaluate hospitals' performance, lack of effective job descriptions and procedures, and uncontrolled medication dispensing, low quality of care provided after surgery, and over utilisation of the emergency room in Kuwaiti hospitals (Al-Jarallah, 1996). The ministry recognised that accurate, complete, and comprehensive patient information and data were necessary for the provision of quality health care, delivering accurate statistics, helping in the planning process, evaluating treatment effectiveness, and facilitating better decision making.

Starting in 1979, a request was developed to invite companies and research groups of international repute to propose a system to computerise health care delivery in Kuwait (Naim et al, 1986). The MOH felt that the final decision regarding the selection and implementation of a ministry-wide information system should await a detailed study.

Then, in the early 1980s, the MOH introduced inexpensive, fragmented modules of a hospital management information system to two hospitals in Kuwait (Al-Adan and Al-Farwaniyah general hospitals). The system was in English only, and had several modules. These modules included admission, discharge, transfer, room/bed and hospital census.

Later, in the mid 1980s, the MOH came up with a master plan for an integrated HIS. These are systems in which all the departments share a common database. All data elements are maintained in a single data dictionary, and users must follow specific rules for updating and editing. The plan had distinct components for strategic planning, operational planning, tactical planning, and project planning (Naim et al. 1986). The implementation of the system was supposed to take place in the early 1990s. Unfortunately, the Iraqi occupation put development plans in all sectors of the country on hold (MOH official document).

Soon after Kuwait's liberation from Iraqi occupation, it was decided to recommence the development of an HIS. The new system was implemented in two selected general hospitals, on a pilot basis. The implementation started

in Al-Farwaniya Hospital (462 bed hospital) in 1992, followed by Al-Amiri Hospital (408 bed hospital) in 1994. A ready-made package provided by an Egyptian company, a Data Management system which runs on an IBM platform was chosen for implementation. The package consists of number of modules corresponding to departments within the hospitals. Installation started with the Basic Module, for abstracting, master patient index (MPI), registration, and medical records tracking. The appointment module for outpatients and inpatients was installed subsequently (Mandil, et al., 1994). The basic and appointment modules were used in both hospitals for operations related to administrative functions, which included registration, admission, discharge, transfer, census, hospital statistics, abstracting of medical records, and indexing. The more advanced module was intended to be used to automate laboratory results reporting, physician order entry, medical administration, inventory control in the pharmacy, control supply, and dietary areas, however, the implementation process never reached that level (MOH official document).

Soon after the early stages of the first modules' implementation, a great deal of dissatisfaction amongst the end users surfaced. Based on personal communication with the hospital stakeholders (Figure 2.3), the end users⁷ stated that the system was not friendly to use, and not easy to perform

⁷ According to Krobock (1984) "The end users can be managers in any of the accepted three levels: strategic planning, management control, or operational

data entry with. The system became a frequent source of irritation and frustration. They indicated that making the system easier to use⁸ or user friendly would help to reduce data entry errors.

In this case, for example, when the physicians or other end users used the machine themselves, specialised devices used a variant of the “point and select” approach (examples of such devices are touch sensitive screens, light pens, and mouse pointing devices). The end users added that designers frequently tried to permit logical selection of items from menus displayed on the screen, so that the user does not have to learn a set of specialised commands in order to enter or review data. They found the system too complicated, with too many menus to do simple tasks. In addition, the system was not supported with a user’s guide to facilitate the operating process. Therefore, it was difficult to remember how to perform tasks within the system.

control. End users can also be at the transaction processing level and have responsibility for no one other than themselves”.

For the most part, writers in this area limit the definition of end users to individuals who interact directly with computer. However, Davis (1989) distinguishes between primary and secondary user roles. The primary user makes decisions based on the system’s output, whilst the secondary user is responsible for interacting with the application to enter data or prepare output reports, but doesn’t use the output directly in his/her job.

⁸ According to Davis (1989) “Ease of use” refers to the degree to which a person believes that using a particular system will be free from effort: this follows from the definition of “Ease” as freedom from difficulty or great effort. For obvious reasons, an application perceived to be easier to use is more likely to be accepted by end users.

Furthermore, they believed that the system was not compatible⁹ with the needs of their job. Their judgements were largely based on the fact that they were not involved with the system development: therefore, the system was not tailored to their needs and work style. In addition, due to the fact that it forced them to change the style of their work that they had been using for many years, they thought that the system should be designed based on their needs.

They added that partly because the package was provided by an Egyptian company, a lack of IT manpower was one of the main factors that affected the users' satisfaction with the system. They stated that although there were a small number of IT specialised personnel, they were not specialists in this type of package, so every time the system was down, they had to wait until the company sent appropriate IT specialised personnel to Kuwait. This meant additional expenses added to the already exhausted budget of the MOH.

This feeling of dissatisfaction resulted in a major part of this 1992 master plan being frozen.

In 1994, the MOH senior management consulted a World Health Organisation led team, with the objective of revising the previous and the

⁹ According to Rogers (1983) "Compatibility is the degree to which the innovation is consistent with existing values, past experiences, and current needs of potential adopters".

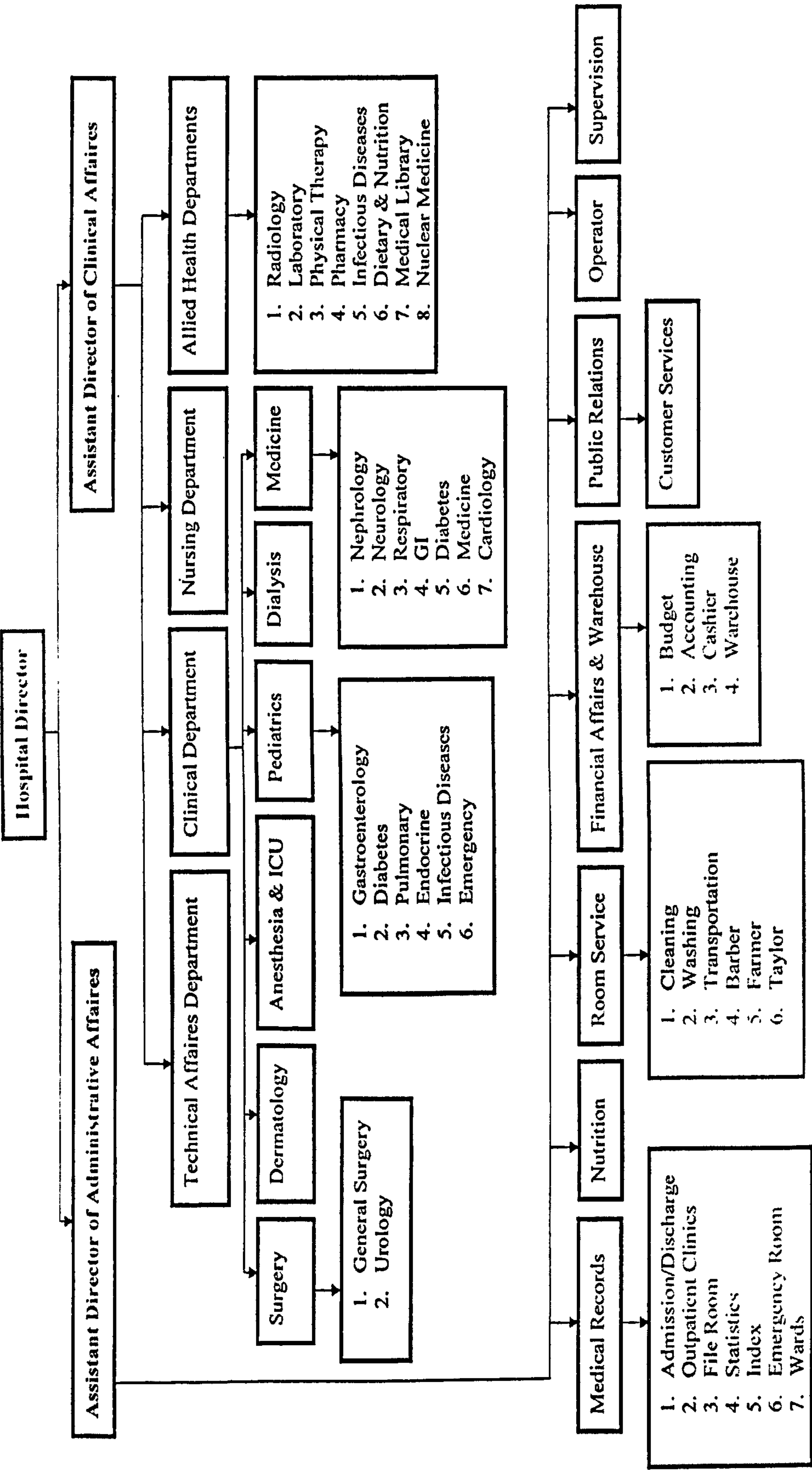
current system. A summary of their findings was given the same year in a report (Mandil et al., 1994). These findings were:

- There was a lack of clear strategic plans by the MOH prior to implementing the 1985 Master Plan.
- The 1985 Master Plan didn't set clear priorities for the implementation.
- All efforts and resources were spent on hardware and system software – little was spent on actual users' training.
- No study was done to evaluate the previous implementation attempts.

The World Health Organisation team made the following recommendations:

- To freeze any further expansion of the present system.
- The team believes that there is an urgent need to establish clear strategic plans, and a preparation plan outlined to set MOH priorities. They believe that a strategic plan should include a technological infrastructure for the system.
- In addition, they believe that a leading team is essential for system implementation.

Figure 2.3 Al-Amiri Hospital Organisational Chart



In March 1995, a new plan to establish a National HIS, named “Afya Net”, was introduced by Dr. Al-Muhailan, Minister of Health at that time. The main objective of Afya Net was to build a National HIS for Kuwait and to create a patient database that covers the total population (Kuwaitis and non-Kuwaitis) (Razzouqi, 1995).

Besides establishing an NHIS, the project’s mission was to support a number of major sub-projects:

- Health Care Management Information System (HCMIS) in which all health care areas in Kuwait share a common database.
- A network, called “Afya Net” to link all institutions belonging to MOH at 149 locations.
- Training in the use of HIS would be provided for the MOH staff on a continuous basis in seven training centres: one in each of the five health regions, one in Sabah centre, and one in the Information Administration Centre in the MOH.

The plan was designed to cover a period of ten years. By the end of this period, all clinics and hospitals in Kuwait should have been fully computerised and linked together to form an integrated health information system. The cost was estimated to reach 28 million KD (£56,000,000). A combination of distributed data processing and centralised approaches was adopted by the master plan. Within each region all health institutions would

be networked, with the region's hospital acting as the central site, and its computer system holding the region's data base. At a later stage, all the hospitals would be linked together, for security and back up reasons, and the department's system would keep an up-to-date master data base of the population.

The actual implementation was supposed to begin by August 1997. Razzouqi (1995) stated that "Afya Net was to be the basic communication infrastructure for the health care arena within Kuwait". However, the MOH suspended the project. Based on interviews with the senior management in MOH, they indicated that the project was suspended because of the following reasons:

- Lack of resources (budget¹⁰ for the project was extremely high).
- Disagreement over whom the bid for the project should go to.

Following the failure of Afya Net implementation, the MOH started to introduce modules of IS at some of the general hospitals (Al-Amiri and Al-Farwaniyah) including Admission, Discharge, Transfer, Scheduling, Master Patient Index, and others.

¹⁰ Budget is numerical document that translate the goals, objectives, and action steps into forecasts of volume and monetary resources needed (AbdelHak et al., 1996). The managerial accounting process includes the activities of planning and preparing budget consistent with the strategic plan.

During the process of collecting information about HIS implementation in the public sector under the responsibility of the MOH, the researcher found that it is not clear whether a new HIS is planned for the public sector. It seems there is a genuine desire by the MOH to improve the information quality in its facilities (Personal communication). It is also apparent that the Ministry recognises the need of being updated with the technology used around the world. There is also a lack of evaluation studies of any of these systems after their abortion, for no evaluation study was ever made in Kuwait on any of the systems described in this section.

2.3.3 The Private Sector's Experiment with HIS. The decision to implement a HIS in any private hospital is taken internally at each hospital by the local management. Out of the four main private hospitals in Kuwait (see Table 2.1), only Al-Mowsat and Al-Hadi hospitals have HIS. Al-Mowsat hospital was the first one to implement an HIS.

Al-Mowsat was established in 1970. It is owned by the Al-Wazzan group, which belongs to a Kuwaiti family; it is one of the biggest companies in the Middle East. They own a large construction company (Borhan) that has carried out big projects in Kuwait, the Middle East region and in Africa.

Because of the pressure of the private sector's competitive environment, a decision was made to plan an HIS in the Al-Mowsat hospital. The system was intended to cover administrative and clinical aspects. The first attempt at implementation was a small inexpensive hospital management

information system which was introduced in 1975. The system, which was English-language only, had six terminals, and produced information needed for hospital management, including patient admissions, reservations, discharges, transfers, room/bed census, hospital census and so on.

In the late 1980s, a new building for the hospital was established, and it the number of patients grew (currently more than 50,000 patient/year), as did the need for a more comprehensive and updated HIS. The hospital's management at that point formed a committee of Information Technology and Systems Experts (IT & ISE) to come up with a new HIS for the hospital. The committee explored many systems worldwide, and finally decided that it was best to contract with Oracle in the US to develop the necessary system and supervise its implementation.

The system was in full operation in 1989. The system is updated on a continuous basis as needed. It is also evaluated continuously to determine whether it is satisfactory. A review of the overall arrangement and a specific check of the design's critical areas are crucial. The proposed system must meet the needs of the employees and managers as well as the organisational needs. The hospital management indicated that there a number of methodologies for evaluating HIS:

- Cost-benefit and cost-effectiveness¹¹.

¹¹ Cost-benefit Analysis (CBA) and Cost-effectiveness Analysis (CEA) constitute procedures for improving rational decision-making. Although CBA

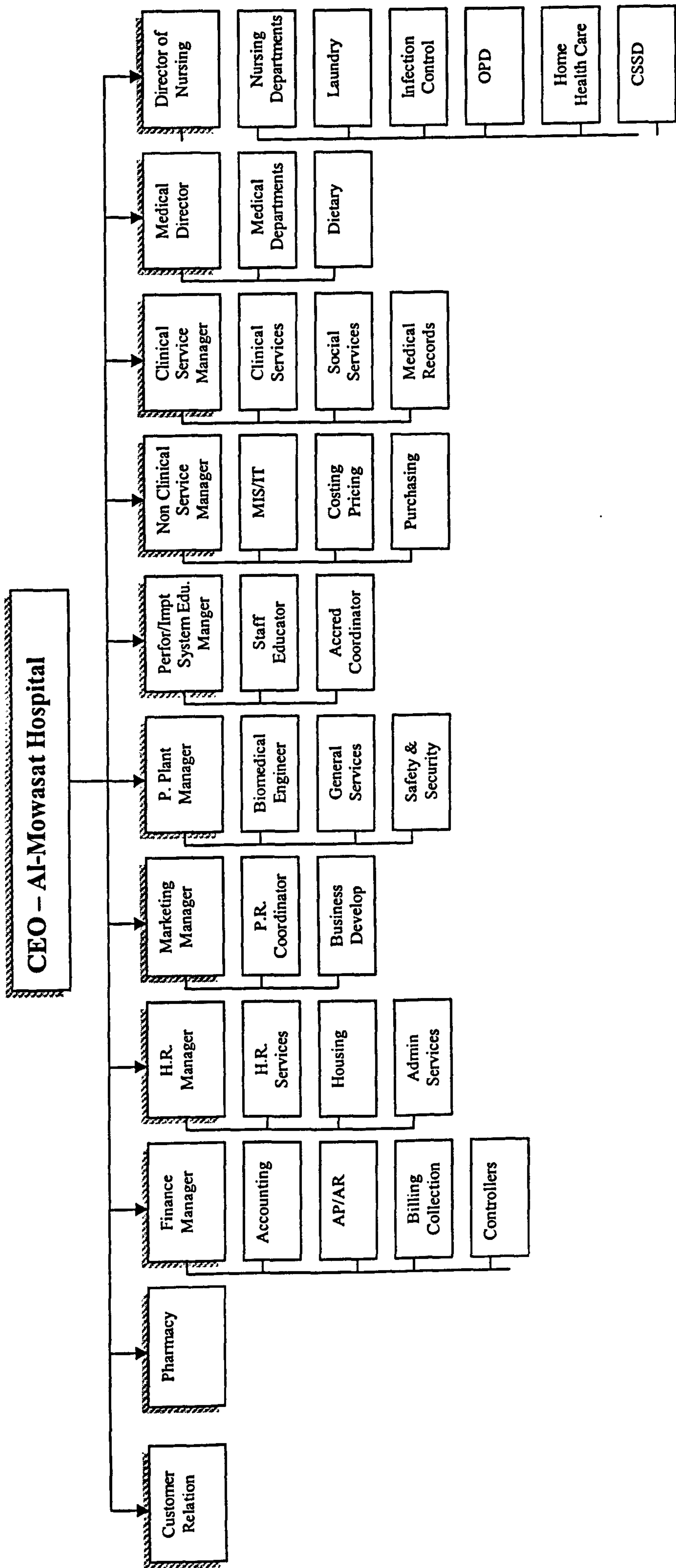
- Patient satisfaction.
- End user satisfaction¹².

The hospital management (Figure 2.4) have made clear that they consider end user satisfaction to be a measure of system effectiveness, and a measure of successful implementation of a new HIS. They distribute a survey each time they upgrade the system. Users answer questions regarding the system's compatability, its ease of usage, its impact on them, whether the system meets their information requirements, maintenance issues, users' general attitude towards the work they do, and the system's myriad interactions among the users. The satisfaction of users' is measured as the weighted sum of the users' positive and negative reactions to a set of factors about the HIS. The hospital management, during an interview with this researcher, has previously stressed that they take a great pride in their HIS system and think of it as one of the most successful systems in the Middle East, based on the yearly formal evaluation of private sector hospitals in the Middle East, 2002.

and CEA are not exactly the same, these two techniques differ only slightly. CBA assigns dollar values to the costs and benefits of a proposed investment, CEA differs only in that certain beneficial consequences of a program or technology are evaluated in nonmentarey terms, for example, "lives saved" (Anderson, et al.,1994)

¹² End users satisfaction is defined as a state or feeling of being satisfied, pleasure, contentment. In IS, the term end-user satisfaction is referred as a sum of feeling or affective responses to distinguishable factors of HIS products and services (AbdelHak et al., 1996).

Figure 2.4 Al-Mowasat Hospital Organisational Chart



2.3.4 Description of HIS in the Public and Private Sectors.

This section includes a more detailed description of the HISs implemented in the public and private sectors.

During the 1970's, HISs were developed in the public and private sectors in several ways. The private hospitals approached information systems with an emphasis on financial information systems, while the public sector developed the goal of a single integrated or monolithic system designed to use one large database that shared its resources among departments. In addition, the public sector hospitals acquired versions of hospital information systems through departmental applications (such as clinical laboratory systems) to which custom features were later added. While the intention was to create common data through a single shared database, this proved to be difficult to achieve. In large measure, database structures and the tools needed to use them effectively were still immature during the 1970's (Shortliffe et al., 1990; Dornfest, 1993).

In the 1980's, communication technology grew to provide foundation application in HCDS (public and private sectors). Demographics and associated information were already available on patients who registered into clinics or were admitted into hospitals, and the necessary data¹³ were automatically sent to hospitals departments. Thus admission notices were

¹³ Data are things known or assumed; facts or figures from which conclusions can be drawn. The term data is a plural term and is used whenever more than one data element is described (AbdelHak et al., 1996).

communicated to dietary, housekeeping, laboratory, radiology, and other ancillary services electronically. In turn, order communications enabled physician orders to be sent from a nursing station directly to an ancillary area. In addition, significant gains were made in building computer networks that linked a variety of diverse applications together.

By the end of the decade, in general a HIS was defined as an institutional information system that links basic business process functions (registration, admission, discharge and transfer) to order communications and results reporting functions to discharge abstracting and patient accounting processes. In the 1990's HISs were required to operate on many functional levels. For instance, they typically embrace and connect multiple functional areas through the information systems. This occurred through integrating information as well as connecting departmental systems through network communications. The HIS contains four components in the public sector (Al-Amiri and Al-Farwaniyah hospitals), while a comprehensive HIS contains six components in the private sector (Al-Mowasat and Al-Hadi hospitals).

Table 2.2 shows the similarities and the differences between the public and private sectors with regard to HIS.

In reality, HIS can be viewed along a continuum from the first two major components (Core application and Communication and networking application) to acquisition of all others. Note that information needed for admission is captured at preadmission and may be entered into the master

patient index, where it is maintained as a permanent name index, for all patients. Applications are connected through communications. Data are viewed as the common resource. Data are also aggregated and used in high-level planning and evaluation efforts.

However, neither the public nor the private sector's HIS attempts to completely replace the patients' medical record or to provide clinicians with a readily accessible, intelligible assembly of clinical data that characterises the condition, prior management, and current treatment plan of patient. Neither sector's HIS provides a clearly defined and well organised database to permit epidemiologic assessment of patient outcomes and patterns of practice, so that management strategies could be viewed within specific clinical contexts. In addition, the public and private sectors' HIS weren't intended to track the patient outside of the hospital, nor to allow comparison of performance of different clinicians.

Table 2.2: Description of the HIS in the Public and Private Sectors

The Public Sector HIS	The Private Sector HIS
<ul style="list-style-type: none"> • Core applications such as patient scheduling, admission, discharge, and transfer, which also provide the central notification to the hospital departments of patient admission. • Communications and networking applications transmit messages between departments such as nursing and ancillary areas. Communications are used to notify these departments of patient admission and to provide tracking orders and responses to them. • Departmental systems such as pharmacy, radiology, and laboratory are designed to manage the functions of those departments and connect data to organisation databases. • Documentation systems are used to collect, store, and retrieve patient data. 	<ul style="list-style-type: none"> • Core applications such as patient scheduling, admission, discharge, and transfer, which also provide the central notification to the hospital departments of patient admission. • Business and financial systems such as patient accounting, billing, and payroll provide data processing for the business activities of the organisation. • Communications and networking applications transmit messages between departments such as nursing and ancillary areas. Communications are used to notify these departments of patient admission and to provide for tracking orders and responses to them. • Departmental systems such as pharmacy, radiology, and laboratory are designed to manage the business functions of those departments and connect data to organisation databases. • Documentation systems are used to collect, store, and retrieve patient data. Applications in this category range from point-of-care bedside terminals for nursing documentation to transcription modules that capture and store clinical reports. • Reminders and advice functions assist physicians in planning patient care activities. Such reminders can include messages to alert for significant test results and drug/drug interaction.

2.4 Conclusion.

It is clear that IS implementation is immensely complex. Berg (2001:144) states that:

“The implementation of comprehensive information systems in health care practices has proved to be a path ridden with risks and dangers. It has become evident that there are many more failure stories to tell than there are success stories and the more comprehensive the technology, or wider the span of implementation, the more difficult it appears to achieve success”.

He added that:

“It has become equally evident that organisational issues account for many of these difficulties, and that social science has an important contribution to make”.

The public sector in Kuwait governed by the MOH seemed to be one of the failure stories of HIS implementation attempts. The current practice of HIS implementation in Kuwait’s health sector is clearly problematic, and no one professional study has ever been conducted with regard to addressing this subject. The current study aims to gather new knowledge to help in identifying problems with the MOH’s current practice of HIS implementation, to help plan better systems in the future, and to learn from experiences in other sectors.

A number of authors have suggested that IS implementation should be viewed as a process of organisational change (Vertinsky et al., 1974;

Zand,1995), and some initial research examining the implications of these suggestions has been conducted (Zand, 1995). There are a number of reasons why taking this view is an important step towards advancing our understanding of implementation (Ginzberg, 1978).

Firstly, implementation is a complex process that extends over a period of time. Secondly, previous research has tended to focus on a single aspect of the implementation problem, and has generally failed to show how these pieces relate to factors which affect implementation. Finally, the change process view is grounded in theory, something that has often being missing from earlier studies of IS implementation. This theoretical base will enable the researcher to integrate the results of studies of IS/HIS implementations with those of other types of social and organisational changes.

The next chapter discusses the literature found regarding change and the multidimensional process of IS/HIS implementation.

CHAPTER THREE

LITERATURE REVIEW

This chapter is divided into four principal sections. After this introduction, a brief description of the search strategy used to review the literature is provided. This is followed by Section One.

Section One provides an introduction to the literature on change management, and a discussion of key terms and concepts. The specific themes of organisational issues and culture are presented: this section examines, analyses, and evaluates the factors that affect the success of new changes.

Section Two begins with a review of the IS implementation process; followed by a review of the factors that can influence the adoption of IS. It also reviews in detail the nature of IS implementation in an organisational context, and the tools for successful implementation. Two major themes emerge from the literature review on IS implementation: namely, organisational issues and user satisfaction. This review should also provide a sense of the historical backgrounds to IS research, and show the foundation and the diversity of IS implementation research.

Section Three begins with a review of the literature on HIS implementation, followed by a review of factors that can affect HIS implementation. The factors identified in this chapter were directly used as themes in the qualitative and quantitative stages of this study.

This is then followed by Section Four, which give a discussion of the implications of the literature reviewed for planning the methods for this study, and how the literature can be applied to a study of the context of the HCDS in Kuwait.

3.1 Search Strategy

Since health care is slower than other industries in investing in information systems, especially to support the clinical services it provides (et al., 1996). Alternative theoretical frameworks from economics and political science/policy science were planned for use in the literature review, and to inform the study design. However, a substantial quantity of literature from health/medical science was found, to such an extent that it was not possible to pursue further searches in these areas.

When reviewing the literature, the researcher had four principal questions in mind, as follows:

1. What are the broad themes that have emerged from the general literature on factors that lead to successful change management in any type of organisation?
2. Have these broad themes been explored with specific reference to the implementation of IS? In addition, are there any specific themes that have emerged with respect to IS?

3. Have these broad themes been explored with specific reference to the implementation of HIS? In addition, are there any specific themes that have emerged with respect to HIS?
4. Is there any literature on the management of organisational change in Arabic countries, or more specifically in Kuwait?

For each of the above mentioned questions the following are presented:

1. The general approach used for the review (i.e. systematic or non-systematic).
 - For the systematic reviews, the databases used are listed, along with the search history of each.
 - For the non-systematic reviews, the main sources that were used (both from the literature and from expert consultation) are listed.
2. Inclusion and exclusion criteria are listed.
3. The number of titles, abstracts, and full articles rejected is reported.
4. The synthesis method that is used to bring the literature together is described.

3.1.1 Question One. “What are the broad themes that have emerged from the general literature on factors that lead to successful change management in any type of organisation?”

General Approach. A non-systematic approach was used in reviewing the literature for this question, because the literature search found little evidence with the systematic approach.

Non-systematic Reviews. A list of key theories and concepts was defined after looking at general management texts and review articles addressing the management of organisational change, as well as through consultation with the librarian at the London School of Hygiene and Tropical Medicine, and discussion with academics, management consultants, and NHS managers.

This identified a number of key books, articles, and reports. The references of these books, articles, and reports were also checked.

Inclusion and Exclusion Criteria. The inclusion and exclusion criteria set for the general overviews on management of change literature were:

- The theories are widely known and commonly used as decided by relevant experts.
- Have a theoretical examination of the key factors that underlie successful organisational change management.

Articles that did not meet the inclusion criteria were excluded.

Rejected Articles. A total of 10 articles were rejected based on the previously mentioned inclusion and exclusion criteria.

Synthesis Method. Of the articles, books, and reports identified in these searches, all were synthesised by using “Thematic Analysis”. This type of analysis involves the identification of prominent or recurrent themes across the articles collected from all the sources of literature. Then the findings are summarised under each specified thematic heading (Dixon-Woods et al., 2005).

Lewin’s theory (1951) references particular factors and their influences, which could be considered the forces for change. These factors can be described as either driving forces or restraining forces that may affect a new change in the organisation. These include the following:

- Theme 1: Organisational issues
- Theme 2 : Culture

Box 1: Theme 1: Organisational issues

Under this theme there are twelve factors:

- Organisational size
- Organisational structure
- Policy and regulation
- Management support
- Leadership
- Quality of planning
- Top management commitment
- Quality of communication
- End users involvement
- Resistance to change (Organisational or individual level)
- Uncertainty
- Incentives

Box 2: Theme 2: Cultural Issues

Under this theme there are two factors:

- Cultural diversity
- Language barrier

3.1.2 Question Two: “Have these broad themes been explored with specific reference to the implementation of IS? In addition, are there any specific themes that have emerged with respect to IS?”

General Approach. A systematic approach was used in reviewing the literature for this question.

A. Systematic Reviews. A systematic search was carried out by searching computerised databases such as Medline and ProQuest/ABI Inform (The ProQuest® online information service provides access to thousands of current periodicals and newspapers, many updated daily and containing full-text articles from 1986). To identify key words the librarian at the London School of Hygiene and Tropical Medicine, as well as academics, experts in health information administration, and professionals from the NHS were consulted.

Table 3.1 shows the search history used in the Medline database, followed by Table 3.2, which shows the ProQuest/ABI Inform database search history.

Table 3.1: The Search History used in the Medline Database

Search Number	Most Recent Queries	Results
1	“Information Systems”[MeSH] OR “Management Information Systems”[MeSH] OR “Informatics”[MeSH])	80845
2	#1 AND “Organisational issues”	372
3	#1 AND “Cultural issues”	0
4	#1 AND “Personnel issues”	0

B. Inclusion and Exclusion Criteria. Certain inclusion criteria were set for reviewing the literature on this question. For the article to be included it had to be:

- Relevant (Burns et al., 1997).
- Have a clear methodology.
- Be a rigorous study (Burns et al., 1997).

The relevancy criterion was set to make the literature focused a round the area of the study. The clear methodology criterion eases both understanding the article and synthesising it for rigour.

Table 3.2: The Search History used in the ProQuest/ABI Inform Database

Search Number	Search History	Results
1	LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY})	958
2	LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY})) AND LSU({STUDIES})	127
3	((LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY})) AND LSU({CASE STUDIES}) AND (Organisational issues))	0
4	((LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY})) AND LSU({CASE STUDIES})) AND (culture issues))	0
5	((LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY})) AND LSU({CASE STUDIES})) AND (Personnel issue)))	0

Only articles that were found to be rigorous were included to ensure the overall quality of the research study conducted. The rigour criteria used are detailed later in this chapter.

Articles that did not meet the inclusion criteria were excluded.

C. Rejected Articles. For the Medline database and the Pro Quest/ABI Inform database a total of 10 articles were rejected based on the previously

mentioned inclusion and exclusion criteria. Table 3.3 shows the number of articles and the reason for their rejection.

Table 3.3: The number of articles and the reason for their rejection in both databases

Search Number	Number			Reason for Rejection
	Titles	Abstract	Full Articles	
2 (Medline)	0	31	2	Not Relevant
2 (Pro Quest/ABI Inform)	0	8	2	Unclear Methodology
Total	0	39	4	

D. Synthesis Method. For this step, the same approach used in 3.1.1, # 4 (i.e. thematic analysis) was also used here. Based on that approach, to answer Question Two, the following were considered the forces for change:

- Theme one: Organisational issues
- Theme two: User satisfaction Issues

Based on Lewin’s force field model, the factors that were identified under each theme could be described as a driving force or a restraining force for successful change.

3.1.3 Question Three: “Have these broad themes been explored with specific reference to the implementation of HIS? In addition, are there any specific themes that have emerged with respect to HIS?”

General Approach. A systematic approach was used in reviewing the literature for this question.

A. Systematic Reviews. The Medline and Pro Quest/ABI Inform databases were used. Table 3.4 shows the search history used in the Medline database, followed by Table 3.5, which shows the ProQuest/ABI Inform database search history.

Table 3.4: The Search History used in the Medline Database

Search Number	Most Recent Queries	Results
1	“Information Systems”[MeSH] OR “Hospital Information Systems”[MeSH] OR “Clinical Laboratory Information Systems”[MeSH] OR “Management Information Systems”[MeSH] OR “Clinical Pharmacy Information Systems”[MeSH] OR “Operating Room Information Systems”[MeSH] OR “Ambulatory Care Information Systems”[MeSH] OR “Organisational Innovation”[MeSH]	93931
2	# 1 AND “Organisational issues”	372
3	#1 AND “Cultural issues”	0
4	#1 AND “User satisfaction issues”	222

Table 3.5: The Search History used in the ProQuest/ABI Inform Database

Search Number	Search History	Results
1	LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY})	958
2	((LSU({INFORMATION SYSTEMS}) AND LSU({INFORMATION TECHNOLOGY}))) AND (hospital)	39
3	LSU({INFORMATION TECHNOLOGY}) AND (LSU({HOSPITAL SYSTEMS}) OR LSU({HOSPITAL SYSTEM})))	30
4	((LSU({INFORMATION TECHNOLOGY}) AND (LSU({HOSPITAL SYSTEMS}) OR LSU({HOSPITAL SYSTEM})))) AND (Organisational issues))	0
5	((LSU({INFORMATION TECHNOLOGY}) AND (LSU({HOSPITAL SYSTEMS}) OR LSU({HOSPITAL SYSTEM}))))	25
6	((LSU({INFORMATION TECHNOLOGY}) AND (LSU({HOSPITAL SYSTEMS}) OR LSU({HOSPITAL SYSTEM})))) AND LSU({CASE STUDIES})) AND (culture issues)	0
7	((LSU({INFORMATION TECHNOLOGY}) AND (LSU({HOSPITAL SYSTEMS}) OR LSU({HOSPITAL SYSTEM})))) AND LSU({CASE STUDIES})) AND (User satisfaction)	0

B. Inclusion and Exclusion Criteria. The same inclusion and exclusion criteria that were used in section 3.1.3 number 3 were also used here.

C. Rejected Articles. Based on the previously mentioned inclusion and exclusion criteria the number of articles rejected was 67, as detailed in table 3.6.

Table 3.6: The number of articles and the reason for their rejection in both databases

Search Number	Number			Reason for Rejection
	Titles	Abstract	Full Articles	
4 (Medline)	0	40	12	Not Relevant
5 (ProQuest/ABI Inform)	0	1	14	Unclear Methodology
Total	0	41	26	67

D. Synthesis Method. For this step, the same approach used in 3.1.1, #4 (i.e. thematic analysis) was also used here. Based on that approach, to answer Question Three, the following are the forces for change:

- Theme 1: Organisational issues (As mentioned previously, page 74)
- Theme 2: User satisfaction

Box 3: Theme 1: Organisational issues

Under this theme there are fifteen factors:

- Organisational size
- Organisational structure
- Policy and regulation
- Management support
- Leadership
- Quality of planning
- Top management commitment
- Quality of communication
- End users involvement
- Resistance to change (Organisational or individual level)
- Uncertainty
- Incentives
- Formation of implementation team
- Competition
- Resource allocation

Box 4: Theme 2: User satisfaction

Under this theme there are ten factors those are the following:

- System quality (Content, Format, Accuracy, Timeliness, and Confidentiality)
- Training
- Rogers' attributes (Relative advantage, Compatibility, Trialability, Ease of use and Observability)

Based on Lewin's force field analysis (1951), all of these factors can be considered as either a driving force or restraining force that may affect a new change in the organisation.

3.1.4 Question Four: "Is there any literature on the management of organisational change in Arabic countries, or more specifically in Kuwait?"

General Approach. A non-systematic approach was used in reviewing the literature for this question, because the literature search found little evidence with the systematic approach.

A. Non-systematic Reviews. Arabic experts were consulted in order to identify key texts on IS or HIS implementation, management of organisational change, and general business models in Arabic countries, or in Kuwait if possible. Since it is unlikely that much Arabic literature will be available for

IS/HIS, the researcher focused on general management culture in Arabian countries, particularly Kuwait, as well as on general business models, in order to explore how these western business theories apply in an Arabian context.

In addition, hand searches were carried out in the only two journals that relate to health issues in the gulf region: namely, the Kuwait Medical Journal (KMJ) and the Saudi Medical Journal (SMJ). No articles were found to be relevant to this question.

B. Inclusion and Exclusion Criteria. No inclusion or exclusion criteria were set for this question since the researcher was looking for non-general overviews or materials that discuss management culture in Arabic countries/Kuwait.

C. Rejected Articles. No articles were found that were relevant to this question

D. Synthesis Method. No articles were found that were relevant to this question

3.2 Section One: Change

3.2.1 Overview. “Up to this point a student of management and organisation theory could only be stunned by how little the efforts to improve quality have learnt from current thinking in management theory and from the experience of other industries”

(Koeck,1998:317).

According to Garside (1998:26), two difficulties present themselves to researchers interested in gathering and applying knowledge relating to organisational change in the health care sector. First, within the large and diverse body of literature on managing and implementing organisational change, few articles discuss issues and problems particular to health care organisations. Second, models and learning systems have not been adequately developed out of the experiences of practising health managers. However, the health care sector should be able to learn something from the experiences of other industries.

3.2.2 Definition of Change. In this section, it is worth briefly outlining some of the definitions and descriptions of “change”. These tend to vary with the level of analysis. At the most general level, “change is a phenomenon of time, it is the way people talk about the event in which something appears to become, or turn into, ‘something else’, where the ‘something else’ is seen as a result or outcome. ” (Ford, 1999)

At the level of the organisation, according to Garside (1998), organisational change is considered to be a subset of organisational development.

Many definitions of organisational development can be found in the literature, but however the following have been selected here for their clarity and scope. Organisational development is defined by Beckhard et al (1987) as “an effort, (1) planned, (2) organisation-wide, (3) managed from the top to (4) increase organisational effectiveness and health through (5) planned interventions in the organisation’s processes using behavioural science knowledge”.

Organisational change was defined by Porras et al (1992:13) as:

“A set of behavioural science-based theories, values, strategies, and techniques aimed at the planned change of the organisational work setting for the purpose of enhancing individual development and improving organisational performance, through alteration of organisational members’ on the job behaviours”. Dawson (1999:13) are more specific about the sorts of interventions that are involved in the process, and state that organisational development includes making changes in: job descriptions; decision making processes and arenas; shape, size, and nature of groups and departments; managerial style; work organisation; quality programmes; mechanisms for reporting and exercising accountability; and human resource management practices.

On one level, organisational development is simply the way organisations change and evolve. Organisational change can involve personnel, technology, competition, and other areas. Employee learning and formal training, transfers, promotions, terminations, and retirement are all examples of personnel-related changes. Thus, in the broadest sense, organisational development means organisational change (Burke, 1980).

The researcher's definition of organisational development is an attempt to describe a very complex process simply. It is also an attempt to capture the best points of several definitions offered by authors in this field.

Organisational development is the process of planned change and improvement of organisations through the application of knowledge of the behavioural sciences. Three points in this definition make it simple to use. Firstly, organisational development involves an attempt to plan organisational changes, thus excluding spontaneous, haphazard initiatives. Secondly, the specific intention of organisation development is to improve organisations. This point excludes changes that merely imitate those of another organisation, are forced on the organisation by external pressures, or are undertaken merely for the sake of changing. Thirdly, the planned improvement must be based on knowledge of behavioural sciences, such as psychology, sociology, cultural anthropology, and related fields of study, rather than on financial or technological considerations. Under this definition, the replacement of manual personnel records with HIS would not be considered organisational

development, because although such a change has behavioural effects, it is a technology-driven reform rather than a behavioural one. Likewise, alterations in record keeping necessary for the MOH to deliver better quality health care are not a part of organisational development, because the change is obligatory and the result of an external force.

3.2.3 Types of Change. Some of the key terms and concepts in the literature regarding the single term “Change” need to be introduced and, briefly, discussed. This discussion will encompass the diversity of thinking and activity influenced by this deceptively simple term. Different types of changes are outlined in the following sections.

Planned versus Emergent Change. Planned change is deliberate, a product of conscious reasoning and action, while change is sometimes spontaneous and unplanned- this latter type of change is emergent change.

Iles et al (2001:14) illustrates that change can be emergent rather than planned in two ways:

1. Managers make a number of decisions apparently unrelated to the change that emerges. The change is therefore not planned.

However, these decisions may be based on unspoken, and sometimes unconscious, assumptions about the organisation, its environment, and the future (Mintzberg, 1989) and are therefore not as unrelated as they might at first seem. Such implicit

assumptions dictate seemingly disparate and unrelated decisions, thereby shaping the change process by 'drift' rather than by design.

2. External factors (such as the economy, competitors' behaviour, and political climate) or internal features (such as the relative power of different interest groups, distribution of knowledge, and uncertainty) influence the change in directions outside the control of managers. Even the most carefully planned and executed change programme will have some emergent impacts.

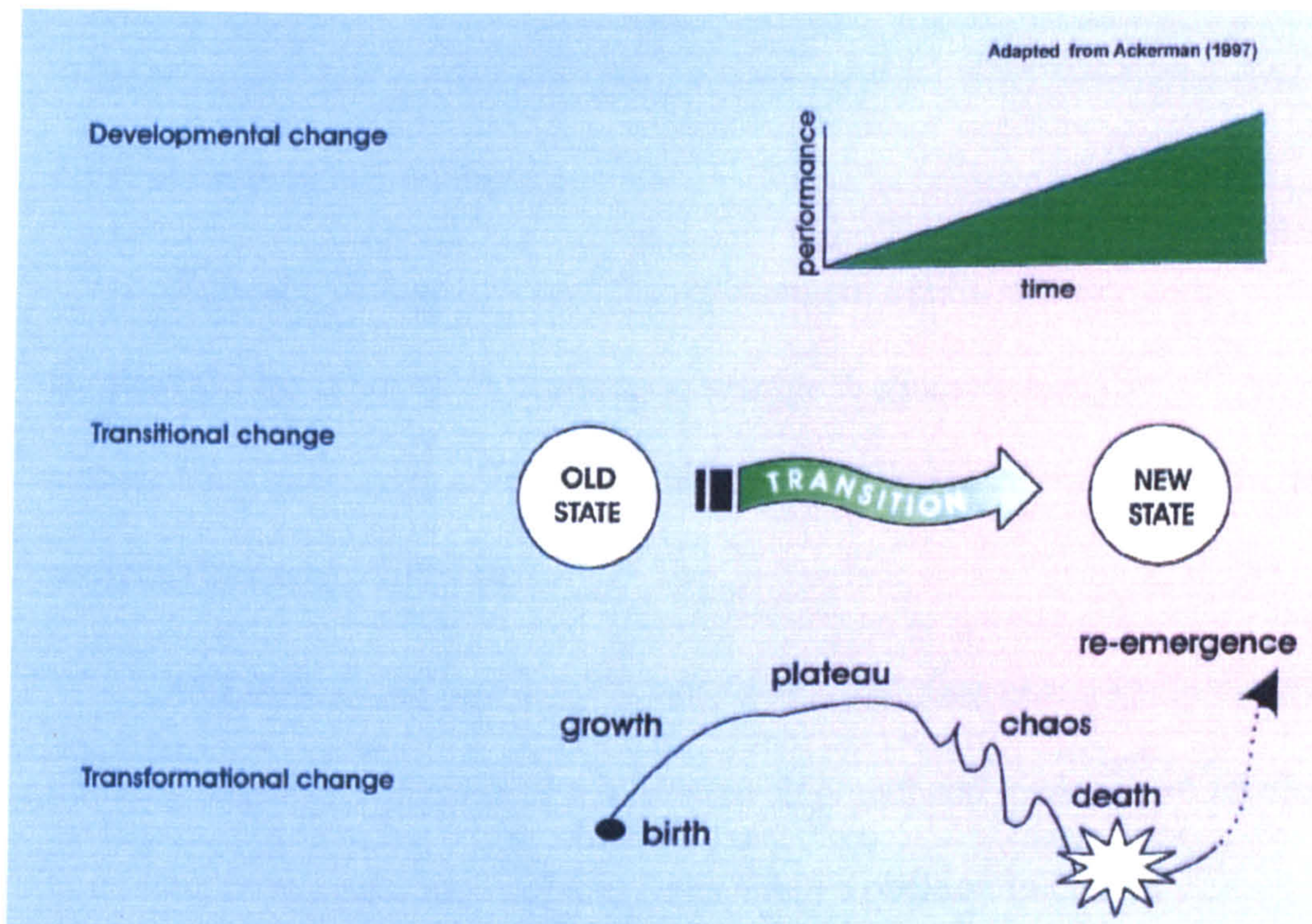
Iles adds that it is important to acknowledge two aspects in managing change:

1. The needs to identify, explore, and if necessary challenge the assumptions that underlie managerial decisions.
2. The need to understand that organisational change is a process that can be facilitated by perceptive and insightful planning and analysis and well crafted, sensitive implementation phases, while acknowledging that it can never be fully isolated from the effects of serendipity, uncertainty and chance (Dawson, 1996).

Episodic versus Continuous Change. In their review "Analyses of Organisational Change", in (1992) Porras et al identified two types of organisational change. One is episodic, discontinuous, and intermittent, and the other is continuous, evolving, and incremental.

Developmental, Transitional and Transformational change. Ackerman (1997) has distinguished between the three types of change: developmental, transitional, and transformational (See figure 3.1).

Figure 3.1: Perspectives on Change (adapted from Iles et al., 2001)



- a) Developmental change can be either planned or emergent. This change enhances or corrects existing aspects of an organisation. It also focuses on improving processes or skills.
- b) Transitional change aims to reach a desired state that is different from the existing one. It is known as episodic, planned, and second order or radical change (Iles et al., 2001). Transitional change is the basis for much of the literature on organisational

Different types of change are discussed in the following sections.

There are big differences between episodic and continuous change.

Episodic change is “infrequent, discontinuous, and intentional” (Weick et al., 1999). In contrast, continuous change is “ongoing, evolving, and cumulative” (Weick et al., 1999). Episodic change is sometimes called radical or second order change, while continuous change is sometimes called sometimes first order or incremental change.

Episodic change involves the replacement of one strategy with another. On the other hand, continuous change is characterised by stakeholders constantly adapting and editing ideas they acquire from different sources (Iles et al., 2001:14).

The differences between episodic and continuous change helps clarify thinking about an organisation’s future development and evolution in relation to its long term goals. Few organisations are in a position to choose unilaterally that they will adopt an exclusively continuous change approach. They can, however, benefit from many of the principles of continuous change. This can be achieved by promoting the flexibility to adapt and experiment with everyday “contingencies, breakdowns, expectation, opportunities and unintended consequences that punctuate organisational life” (Orlikowski, 1996).

change (Kanter, 1983; Beckhard et al., 1987; Nadler et al., 1989).

It has its foundations in Lewin's theory (1951), which will be discussed in detail in the following section.

- c) Transformational change is known as radical or second order change. It requires a shift in assumptions made by the organisation and its members. Transformational change can result in an organisation that changes considerably in terms of structure, processes, culture, and strategy (emergence of a new state).

3.2.4 Systems Thinking and Change. Cummings et al (1985) and Dawson (1996) say that:

“Many of the approaches to organisational change found in the literature give the impression that change can be a rational, controlled, and orderly process. In practice, however, organisational change is chaotic, often involving shifting goals, discontinuous activities, surprising events, and unexpected combinations of changes and outcomes” (Iles et al., 2001:16).

Many models have been developed that are intended to help achieve change. But in order to understand change we have to understand the complex system in which change takes place.

A system thinking has its foundation in the field of system dynamics, developed in 1956 at the Massachusetts Institute of Technology by Professor Jay Forrester. He recognised the need for a better way of testing new ideas about social systems, in the same way that we can test ideas in engineering.

System thinking allows people to make their understanding of social systems explicit, and to improve their understanding of mechanical systems (Checkland, 1981:10).

Recently, a management study has come to view organisations from a systems thinking perspective. This new way of looking at organisations has brought about a significant change in management studies and its approaches to its subject.

A system is defined as a collection of elements, or parts, or subsystems, integrated to accomplish an overall goal (a system of people is an organisation). Systems have input processes, outputs, and outcomes, with ongoing feedback among these various parts (Dawson, 1996:22). If one part of the system is removed, the nature of the system is changed. Systems range from very simple to very complex. Complex systems, such as social systems, are comprised of numerous subsystems (Checkland, 1981:12). These subsystems are arranged in hierarchies, and integrated to accomplish the overall goal of the overall system. Each subsystem has its own boundaries of sorts, and includes various inputs, processes, outputs, and outcomes geared to accomplish an overall goal for the subsystem. Applied to change management, system theory can help managers to look at organisations from a broader perspective (Iles et al., 2001:17).

Systems thinking involves studying things in a holistic way, rather than purely by reductionist techniques. It aims to gain insights into the whole

by understanding the linkages, interactions and processes between the elements that comprise the whole “system” (Checkland, 1981). One problem that can be caused by a lack of systems thinking in an organisation is the silo effect, whereby a lack of organisational communication can cause a change in one area of a system to adversely affect another area of the system (Garside, 1998).

In terms of understanding organisations, systems thinking proposes that issues and forces should not be viewed as isolated facts but seen as interdependent components of a complex entity (Popper, 1972).

Applied to change management, systems theory can shed the light on the following points (Hes et al., 2001:17):

- A system is made of related parts; any system must be viewed as a whole, interacting as a structured functional unit in equilibrium.
- Information flows between the different elements that compose the system.
- A system is a community situated within an environment.
- Information flows from and to the surrounding environment via semi-permeable membranes or boundaries.

Senge (1990) said that a proper understanding of a system can only be reached by considering the whole. He said that:

“People inside the system tend to focus on snapshots of isolated parts, thus rarely solving their deepest problems” (Garside, 1998:12).

A system thinking also helps integrate the sequential dimension of any decision. Instead of looking at separate “snapshots” or points in time, system thinking will allow managers to see change as a continuous process (Garside, 1998:12).

Traditional decision making tends to involve linear cause and effect relationships. Instead of looking at and analysing the problem in terms of an input and an output, for example, we look at the whole system of inputs, processes, outputs, feedback, and controls (Iles et al., 2001:75). This larger picture will typically provide more useful results than traditional methods (Senge, 1990:54).

Management sciences have learned much about organisations and how they work from systems theory. Much of this learning has come from assuming the perspectives that organisations are systems, like people, plants or animals. Senge (1990) said there are many benefits to managers who adopt this system based view. First, systems thinking allow managers to solve problems in organisations more effectively: it is very important to be able to identify the real causes of the problem and how to address these causes. Without a clear understanding of the “big picture” of an organisation, leaders are likely to focus only on the behaviours and events rather than on the systems and structures that caused the problems.

Second, systems thinking allow managers to be more effective as leaders. The most important responsibilities of a leader are to set a direction and to influence others to follow that direction. Without a clear understanding of the overall goals and needs of an organisation, the load of daily activities can all too easily overwhelm a leader, who is then able to devote only limited time to more important issues such as planning the organisation's direction and managing its resources.

Third, without a clear understanding of the parts of the organisation and how they are related to each other, it is difficult to know what to communicate and to whom. One of the most important ingredients for the success of any system, including organisations, is ongoing communication between all the parts of the organisation.

Finally, in order to achieve an effective form of organisational development, it is necessary to employ various strategies, including strategic planning, management and leadership, supervisory development, organisational and employee performance management, and principals of organisational change. For any leader (or top management) to employ these various strategies in an effective fashion, they will first need a good understanding of the overall systems in their organisations, including its major functions, departments, processes, teams, and individual employees. Consequently, having a systems view is critical to accomplishing effective organisational development.

Understanding systems thinking will allow us understand change management models. The next sections will take the reader through the organisational change in the Kuwaiti HCDS, and will elucidate some of the lessons that can be learned from the private sector.

3.2.5 Organisational Change in the Kuwaiti HCDS. As mentioned in Chapter Two, for more than two decades, several attempts were made to implement HIS in the public sector in Kuwait's HCDS. Clearly, then, HIS implementation in Kuwait's health sector seems to be problematic. The public sector in the Kuwaiti HCDS is characterised by the following:

- Complex organisation.
- Diverse people with different cultures and norms.
- Centralisation of decision making.

MOH is a large organisation, employing people with a wide range of talents, viewpoints and passions. It is also a complex organisation, with many different cultures and norms, evolved from a number of factors including:

- Different working groups from different cultures.
- Different needs.
- Different expectations.
- Different priorities.
- Limited resources.

This high level of complexity is a direct consequence of the high level of specialisation¹⁴ of the health-related professions that has produced so many advances in health care (Iles et al., 2001:11). This specialisation also leads to a high degree of interdependence between practitioners and processes. This interdependence means that services and organisations within MOH are dynamic and complex.

3.2.6 Learning from the Private Sector. Most of the literature concerned with organisational change is derived from the private sector. The key question, then, is whether people or stakeholders within the MOH can transfer and implement these theories and models developed in the private sector in their own complex and dynamic organisations.

Golembiewski et al (1982), in his meta-analysis study, found that public sector interventions display a pattern of results similar to private sectors programmes (that is, 84% positive in the public sector versus 89% positive in the private sector organisations) (Iles et al., 2001:18). In addition, in his meta-analysis, Robertson et al (1995) studied organisational outcomes in terms of work setting, individual behaviour, and organisational performance, and concluded that there were no overall significant differences between public and private sectors regarding the amount of change induced by the 47 planned change interventions they studied (Iles et al., 2001:18).

¹⁴ Specialisation represents the number of different medical specialities found in the hospital (Kimberly et al., 1981: 698)

Change within public sector organisations, and particularly in those populated by different professional groups is surrounded by complexity, and this can be further compounded in hierarchal organisations than those in non-hierarchal organisations (Iles et al., 2001). It seems that success is dependent on many factors such as quality of implementation, the degree of support from influential organisation members, the involvement of different stakeholders, and the accuracy of the principles on which the approach to change is based (Iles et al., 2001:10). There is evidence from the manufacturing sector to demonstrate that top management involvement is very critical to success. Furthermore, also Iles et al (2001) points out:

“It is important to identify the opinion-formers within the professions who may not see themselves as top management”.

In addition, it is also important to note that the scale of change should be considered when drawing lessons from other sectors. It seems that small, goal- driven interventions have a high potential for success, while the change initiatives in the public sector are challenged due to the intrinsic complexity, culture, and power dynamics of that sector.

3.2.7 Challenges Facing the Public Sector in Kuwait. In order to achieve successful change initiatives in the Kuwaiti public sector, one will inevitably have to work with:

- Different stakeholders trying to achieve different objectives.

- Stakeholders who have experience of failed change interventions (including previous HIS implementation).
- Changing forces in the surroundings.
- Complex organisations in which individuals and teams are interdependent

In addition to all the above factors, it is important to note that cause and effect relationships may not be clearly evident, which means that change in any part of the health care organisations will have outcomes in many others. The fact that change initiatives sometimes lead to unanticipated consequences had been discussed by Smith (1995a).

For all these reasons change, in the Kuwaiti HCDS is not easy or straightforward. In Chapter Two (section 2.3.2), the end users stressed that lack of support for the innovation by the top management at the MOH indeed affects the diffusion of HIS in Kuwait. This lack of support caused resistance of change by different subordinates under different management levels. In addition, users believed that the system was not easy to use; they perceived it as being too complex.

So, how can one implement change in the Kuwaiti HCDS successfully? Goals that are ambitious, such as the successful implementation of HIS, require that MOH become an organisation able to embrace change, which will depend on stakeholders within the MOH becoming experienced in

handling change in a complex organisation with different stakeholders, different priorities, and many constraints.

The next section is about change management theories and models that have been discussed frequently in the literature. It considers which are likely to be the most useful for understanding particular circumstances that affect successful change initiatives. In addition, it addresses the question of how can we learn from the previous failure of change implementation (i.e. HIS implementation) to improve future HIS implementation.

3.2.8 Change Management Models. Many authors and theorists have conceptualised different change management models. Four models were selected for review because they have introduced a basic framework for this study. These models provide sets of different factors that support the quantitative and qualitative design. The models selected are: Lewin (1951) and the Force Field model; Rogers (1983) and the Diffusion of Innovation model; Waterman et al (1980) and the 7S model, Pettigrew et al (1991) and the Content, Context, and Process model.

Processes for Planned Organisational Change. External elements may force change on an organisation. Ideally, however, the organisation will not respond to change but anticipate it, prepare for it through planning, and incorporate it into the organisation's strategy. Organisational change can be viewed from a static point of view, such as that of Lewin, or from a dynamic perspective.

Lewin's Process ("Force Field") Model. Planned organisational change requires a systematic process of moving one condition to another. Kurt Lewin suggested that efforts to bring about planned change in organisations should approach change as a multistage process (Lewin, 1951). His model of planned change is made up of three steps: unfreezing, change, and refreezing.

Unfreezing is the process by which people become aware of the need for change. Satisfaction with current practices and procedures may result in little or no interest in making changes. The employees who will be most affected by the change must be made aware of the need for it, in effect making them dissatisfied enough with current operations to be motivated toward change.

Change is the movement from an old stage to a new one. Change may mean installing new equipment, restructuring the organisation, or implementing a new performance appraisal system– basically, that alters existing relationships or activities.

Refreezing makes new behaviours relatively permanent and resistant to further change. Examples of refreezing include repeating newly learned skills in a training session and role playing to teach how the new skill can be used in a real-life work situation. Refreezing is necessary because without it, the old way of doing things might reassert itself while the new ways get forgotten. For example, many employees who attend special training sessions apply themselves diligently throughout the training, and resolve to change

things in their organisations. But when they return to the workplace, they find it easier to conform to the old ways than to make waves. There are usually few, if any, rewards for trying to change the organisational status quo. In fact, the personal sanctions against doing so may be difficult to tolerate. Moorhead et al (1998) suggests that learning theory and reinforcement theory can play an important role in the refreezing phase.

Lewin (1952) and Schein (1987) describe the process as moving through three stages. The first stage, “unfreezing”, encompasses the activities in which affected parties come to see the opportunities and benefits of the proposed system as well as the limitations and problems with the current system. The second stage, “moving”, involves the development of the systems, procedures, and policies that will make the proposed system operational. The final stage “refreezing”, includes all those activities at the individual, group, and organisational level that reinforce the use of the new system. After refreezing, the performance of the new system is a function of the “fit” between new tasks, individuals, and technology.

Iles et al (2001:44) points out that:

“Lewin’s Force Field analysis is based on the concept of ‘forces’, a term which refers to the perceptions of people in the organisation about a particular factor and its influence”.

These forces are:

- Driving forces, i.e., those forces affecting a situation which are attempting to push it in a particular direction. These forces tend to initiate change or keep it going.
- Restraining forces, i.e., forces acting to restrain or decrease the driving forces.

A state of equilibrium is reached when the sum of the driving forces equals the sum of the restraining forces”.

She adds that Lewin formulates three fundamental assertions about force fields and change:

1. Increasing the driving forces can result in an increase in the resisting forces; the current equilibrium does not change but is maintained under increased tension.
2. Reducing resisting forces is preferable, because it allows movement towards the desired state without increasing tension.
3. Group norms are an important force in resisting and shaping organisational change (Lewin, 1951).

Because Lewin’s model is very simple and straightforward, virtually all models of organisational change use this approach. The model, however, does not address several important issues. A more complex, and more helpful, approach is discussed in the following section.

The Continuous Change Process Model. This approach views change as continuous. It looks at planned change from the perspective of top management, although it is important to note that when change becomes continuous in organisations, these steps are most likely occurring simultaneously throughout the organisation. This model incorporates Lewin's concept into the implementation phase.

In this approach, top management perceives that certain forces or trends call for change, and the issue is subjected to the organisation's usual problem-solving and decision-making processes. Usually, top management defines its goals in terms of what the organisation or certain processes or outputs will be like after the change. Alternatives for change are generated and evaluated, and an acceptable one is selected.

Early in the process, the organisation may seek the assistance of a change agent (a person who will be responsible for managing the change effort). The change agent may also help management recognise and define the problem or the need for the change, and may be involved in generating and evaluating potential plans of action. The change agent may be a member of the organisation, or an outsider such as a consultant, or even someone from headquarters whom employees view as an outsider.

An internal change agent is more likely to know the organisation's people, tasks, and political situation, which may be helpful in interpreting data and understanding the system; an insider, however, may also be too close to

the situation to view it objectively. An outsider, then, is often received better by all parties because of her or his assumed impartiality. Under the direction and management of the change agent, the organisation implements the change through Lewin's unfreeze, change, and refreeze process.

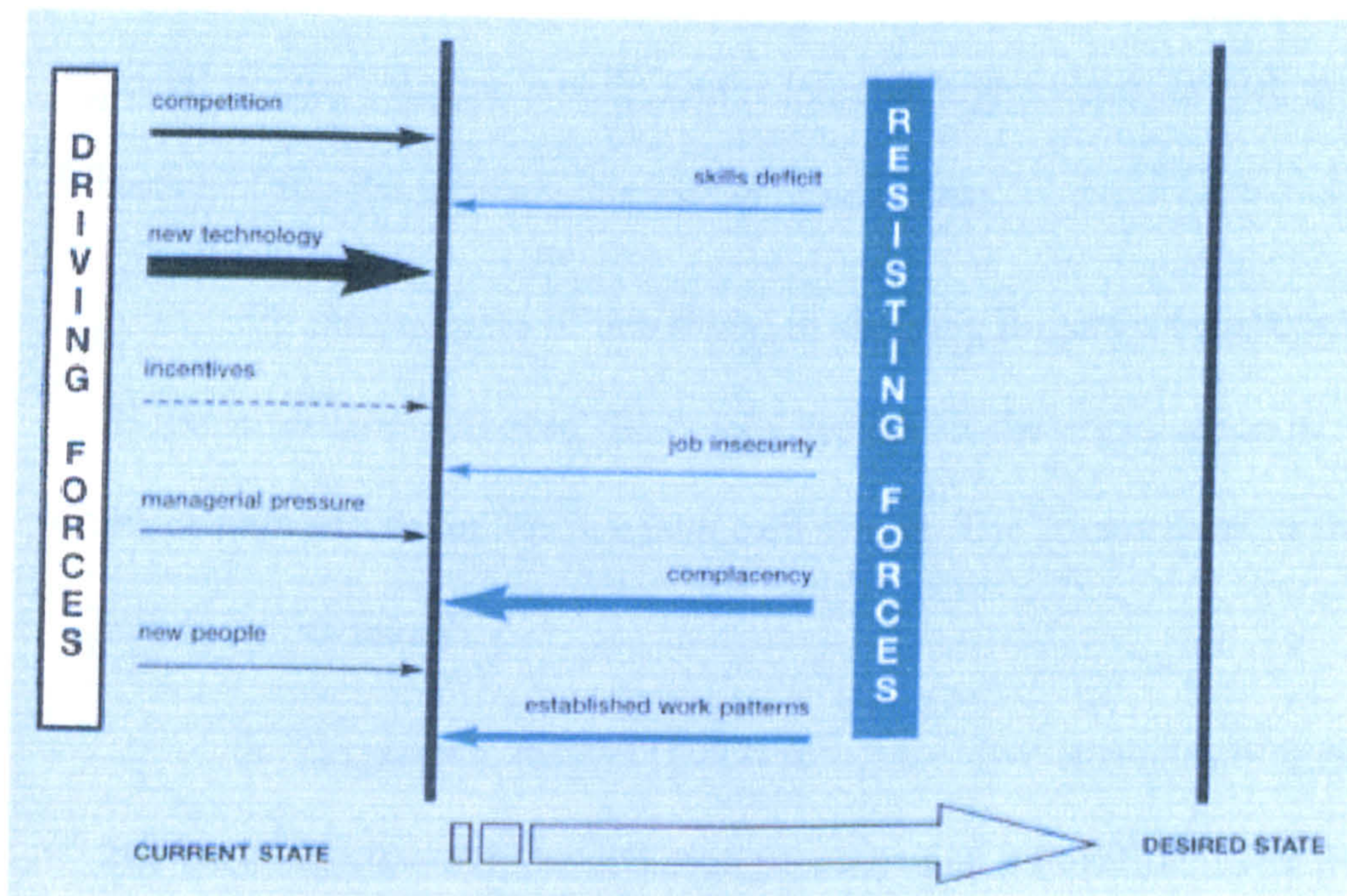
In the final step, evaluation and control, the change agent and top management assess the degree to which the change is having the desired effect: that is, they measure progress toward the goals of the change and make appropriate changes if necessary. The more closely the change agent is involved in the change process, the less distinct the steps become. As the change agent becomes immersed in defining and solving the problem with members of the organisation, she or he becomes a "collaborator" or "helper" to the organisation. When this happens, the change agent may be working with many individuals, groups, and departments within the organisation on different phases of the change process. Because of the total involvement of the change agent in every phase of the project, it may not be readily observable when the change process is moving along from one stage to another.

Throughout the process, however, the change agent brings in new ideas and viewpoints that help members look at old problems in new ways. Change often comes from the conflict that results when the change agent challenges the organisation's assumptions and generally accepted patterns of operation.

Transition management is the process of systemically planning, organising, and implementing change, from the disassembly of the current

state to the realisation of a fully functional future state within an organisation (Ackerman, 1982). Once change begins, the organisation is in neither the old state nor the new state— yet business must continue. Transition management ensures that business continues during the change, and thus it must begin before the change occurs. The members of the regular management team must take on the role of transition managers and coordinate organisational activities with the change agent. An interim management structure or interim positions may be created to ensure continuity and control of the business during the transition. Communication of the changes to all involved, including employees, patients, and suppliers, plays an important role in transition management (Tichy et al., 1984).

Figure 3.2: Lewin's Force Field Model (Adapted from Iles et al., 2001)



Innovation Research (the “Diffusion of Innovation” Model). E.M

Rogers is an expert and noted theorist in the field of knowledge diffusion and utilisation. Rogers has conducted research related to knowledge diffusion and utilisation for 25 years and his theory is a synthesis of his and other scientists' research in this field.

There is a consensus amongst researchers that Everette Rogers is a pioneer in diffusion studies. Rogers (1983) discussed the concept, elements, and attributes of innovations of DOI and their rate of acceptance and implementation. He defined diffusion of innovation as “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 1983). Rogers also defined diffusion as “the process by which alteration occurs in the structure and function of a social system”. Rogers's definition is loose enough to include both the designed and the spontaneous spread of new ideas.

For the purposes of this study, in applying Rogers's definitions to the IS implementation process, the “social system” is the organisation in which the change will occur, i.e., a health care setting. The “innovation” is the new HIS to be “diffused”.

In his research, Rogers (1987) recognises five attributes of innovations that “have an impact in the diffusion process of an innovation”. The five attributes which influence the acceptance of the innovation include the following:

1. **Relative advantage:** the degree to which the innovation represents an improvement over prior ways of doing things
2. **Compatibility:** the degree to which innovations are consistent with past experiences and current needs of potential adopters.
3. **Trialability:** the degree to which an innovation may be experimented with on a trial basis.
4. **Ease of use:** Ease of usage is defined as the degree to which a new system is perceived as relatively difficult to understand and use.
5. **Observability:** the degree to which the operations and results of a new system are observable to others.

Rogers later added “re-invention” to the list of attributes that influence innovation diffusion. Some, however, consider re-invention as complementary to the original five attributes. It is defined as the degree to which an innovation is changeable or modifiable by the users (Rogers, 1987).

The adoption process, from the viewpoint of the individual, was described by Rogers (1987) as a five-stage process, as follows:

1. **Knowledge stage:** the first awareness of the existence of the innovation ;
2. **Persuasion stage:** occurs when the individual forms an attitude toward the innovation.

3. Decision stage: occurs when the individual forms an attitude toward the innovation.
4. Implementation stage: occurs when the individual uses the innovation.
5. Confirmation stage: occurs when the individual evaluates the effectiveness of the innovation and decides to either continue or discontinue it (Rogers, 1987).

Innovativeness is the “degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than are the other members of a system” (Roger, 1983:22). Rogers uses five categories to describe adopters, based on their degree of innovativeness: 1) Innovators, 2) Early adopters, 3) Early majority, 4) Late majority, and 5) Laggards.

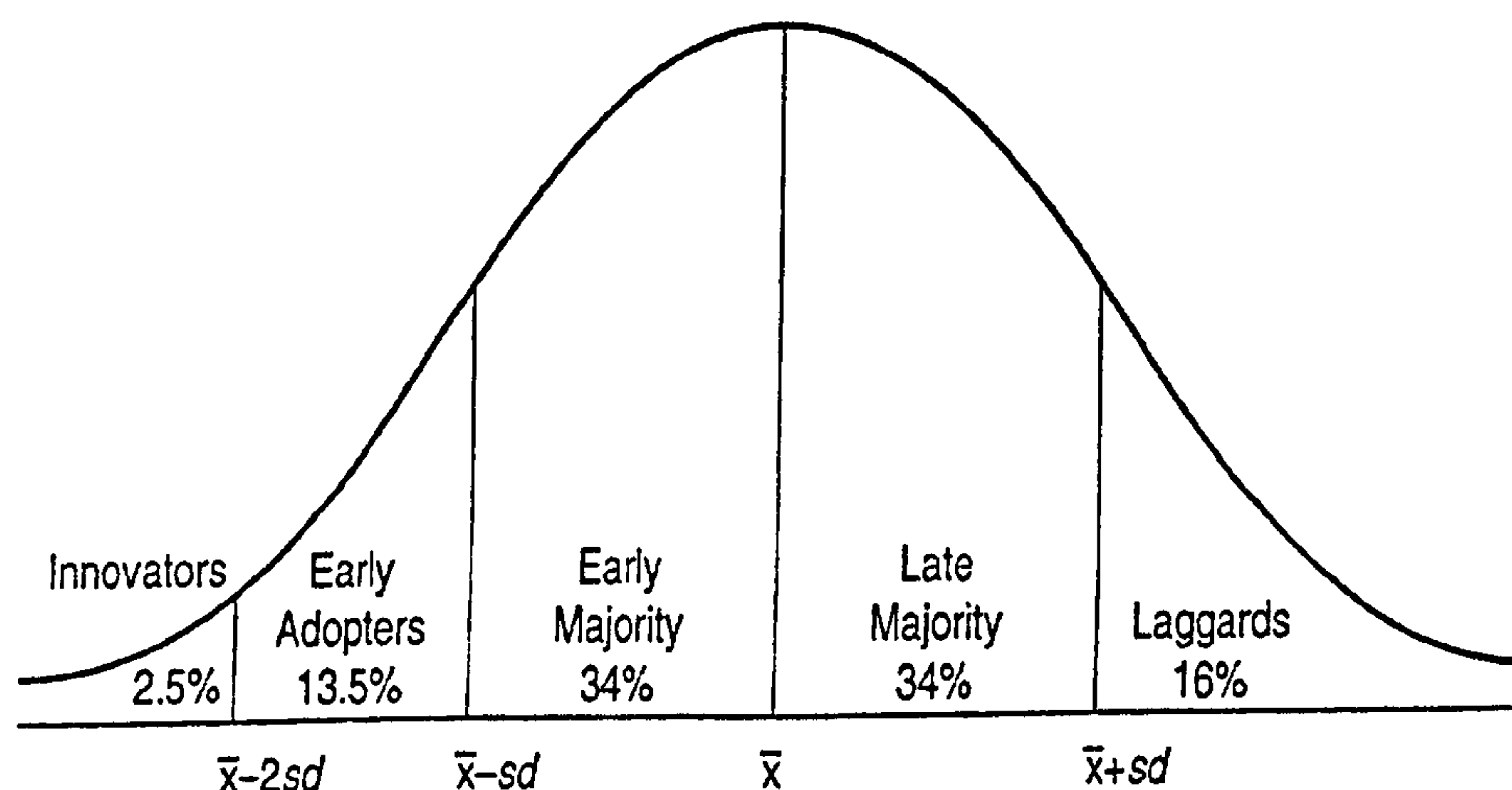
Innovators are active information seekers of new ideas. They have a high level of mass media exposure and interpersonal networks that are widely extended, reaching beyond their local social system. From these sources, they receive early information about innovations. Innovators usually function outside the existing social structures and tend to have cosmopolitan relationships. They are the change agents an organisation may hire to implement an innovation. Their social support system is derived and not tightly linked. Innovators can cope with higher levels of uncertainty related to an innovation than can other adopters and are the first to adopt a new idea. They do not rely on subjective evaluations of the innovation by other system

members. Because innovators are less closely linked with the local social system, they have less influence on adoption of an innovation within the system than do early adopters.

Early adopters tend to be opinion leaders in existing social systems. They learn about new ideas rapidly, utilise them, and then serve as role models in their use. In the hospital, early adopters might be end users like nurses, clerks, and administrators. The early majority are rarely leaders, but are active followers and will readily follow in the use of a new idea. The late majority are sceptical about new ideas and will adopt them only if group pressure is great. The laggards are security oriented, tending to cling to the past, and are often isolated without a strong support system. By the time they adopt a new idea, it is considered by most to be an old idea.

Research has shown that the adopter distribution over time approaches a bell shaped curve (see figure 3.3). The innovators (2.5%) and early adopters (13.5%) are comparable in numbers to the laggards (16%). This distribution can assist agencies in realistically identifying the number of individuals who will and will not support a change. The early adopters and early majority can form a powerful group to promote change in the late majority. All groups (innovators, early adopters, and early and late majority) can apply pressure to persuade the laggards to change, but many of the laggards will continue to resist change and some may leave the organisation.

Figure 3.3. Adoptors distributions (Rogers, 1971)



Norms, the expected behaviour patterns within a social system, affect diffusion of innovations. Norms can serve as barriers to change, or can facilitate change. When the norms of the social system are oriented towards change, the opinion leaders tend to be innovative (early adopters), and change is facilitated. When the norms are opposed to change, so are the opinion leaders, thus creating barriers to change. When innovations are diffused, and adopted or rejected within a social system, social change occurs, affecting the norms of the system.

Innovation theory details why certain innovations are used and disseminated within a given environment or through channels while others are not. Rogers (1987) theorises that the diffusion of knowledge can be achieved by an innovation decision process that consists of the five stages set out

above: knowledge, persuasion, decision, implementation, and confirmation.

The knowledge stage starts when an individual obtains some information about the functions of a certain innovation. The persuasion stage occurs when the decision is taken either in favour or against that innovation. Rogers (1987) states that during the persuasion stage, an individual develops a favourable or unfavourable attitude toward the change or innovation (Rogers, 1987). The implementation stage takes place when the innovation is put into use. Finally, the organisation or the decision maker seeks reinforcement and confirmation of the innovation already made.

Innovations with highly visible, beneficial results tend to be more rapidly diffused. In conclusion, innovations that have relatively great advantages, are compatible, have trialability, are not complex, and are observable will be adopted more quickly than innovations that do not meet these criteria.

More recent studies in this area have focused on exploring the social and cultural factors in promoting or hindering change (Pettigrew et al., 1992; Dawson., 1999).

The following section introduces a new change management model, known as the 7S model that is the 7S that provides a checklist of the aspects of an organisation that should be considered simultaneously in recognition of their interdependence.

The 7S Model. Some years later, Waterman et al (1980), working for the US management consultancy McKinsey, suggested that there are seven aspects of an organisation that need to match each other and to point in the same direction in order to achieve change. If each aspect supports the others then the organisation can be said to be “organised” and able to achieve the required change (Iles et al., 2001). As each of these aspects is a word beginning with the letter S, this list, or web, has become known as the 7S Model.

Iles et al (2001:27) identified the constituent parts of the 7S Model are:

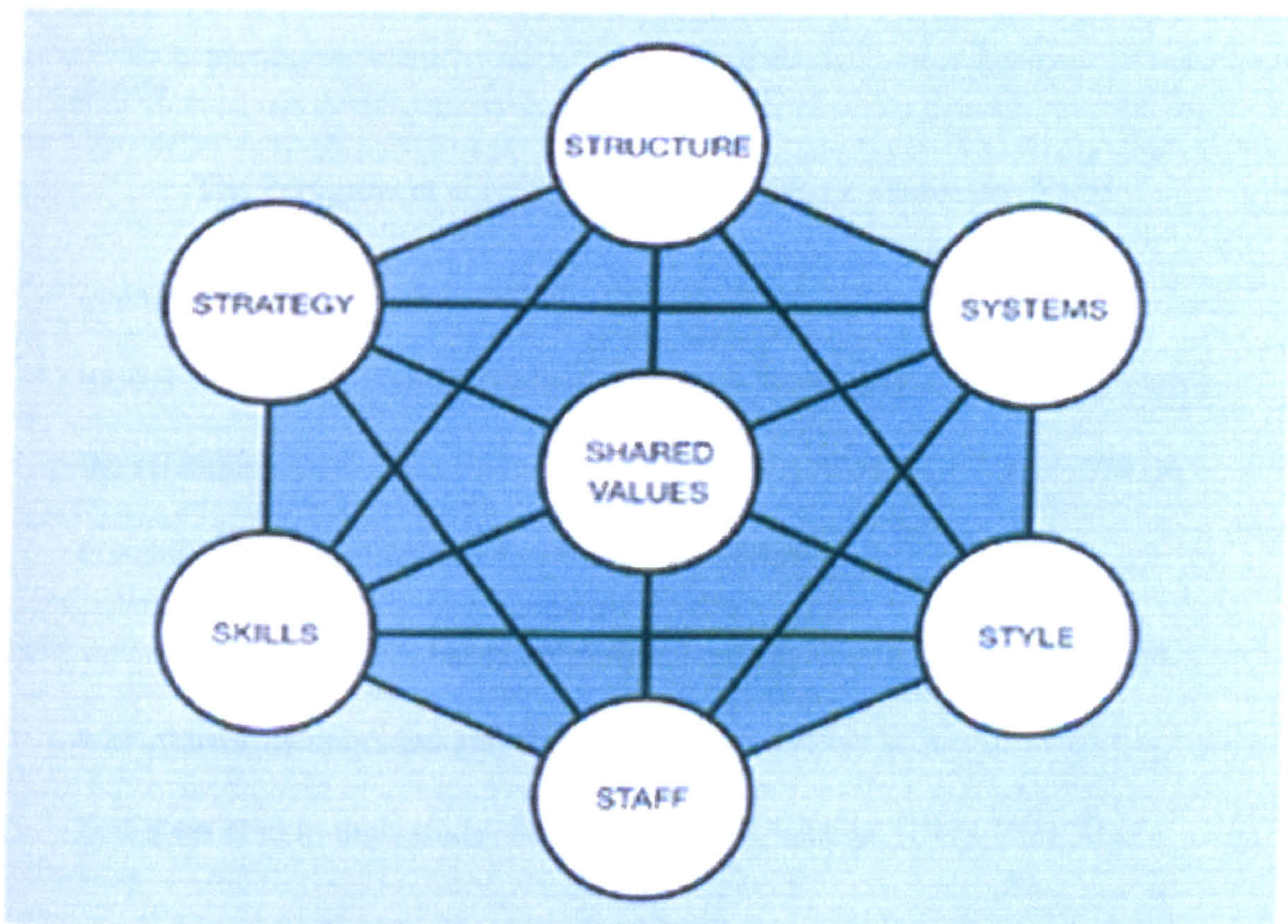
- Strategy: plan or course of action leading to the allocation of an organisation’s finite resources to reach identified goals.
- Structure: features of the organisational chart (e.g. degree of hierarchy, presence of internal market, extent of centralisation / decentralisation) and interconnections within the organisation.
- Systems: procedures and routine processes, including how information moves around the organisation (e.g. bureaucracy).
- Staff: personnel categories within the organisation (e.g. nurses, doctors, technicians).
- Style: characterisation of how key managers behave in order to achieve the organisation’s goals.

- Shared values: the significant meanings or guiding concepts that an organisation infuses in its members.
- Skills: distinctive capabilities of key personnel and the organisation as a whole.

Iles et al (2001) indicates that the 7S model can be used by managers in two ways. Firstly, organisations can identify the strengths and weaknesses by considering the links between each of the Ss. She explains that no S is a strength or a weakness in its own right:

“It is only its degree of support, or otherwise, for the other Ss which is relevant. Any Ss which harmonise with all the other Ss can be thought of strengths, any dissonances as weakness” (Iles et al., 2001:27).

Figure 3.4 The 7S model (Iles et al., 2001)



Secondly, the model shows how a change made in any one of the Ss will have an influence on all of the others. Thus, if a planned change is to be effective, then changes in one S must be associated with similar changes in the others (Iles et al., 2001:27).

Pettigrew (1985) proposes that change should not be considered only in terms of processes, but should also consider the historical, cultural, and political features of the organisation. The Pettigrew et al (1991) model will be discussed in the following section.

The Content, Context and Process Model. In 1991, Pettigrew and Whipp developed a model of strategic change to try to gain an insight into why some private sector organisations were able to manage strategic change and improve their competitive performance better than those in the public sector.

The Pettigrew et al (1991) model for strategic change involves:

“continuous interplay between the ideas about the context of change, the process of change, and the content of change, together with skill in regulating the relations between the three. Formulating the content of strategic change crucially entails managing its context and process”.

This model was based on practical case studies as well as theory. It was afterwards upgraded and elaborated in the context of health care by Pettigrew et al in their study, *Shaping Strategic Change* (1992:198). This

study stressed that change occurs in a historical, cultural, economic and political context. They put forward five interrelated factors that are important in shaping an organisation's level of operation:

1. Environmental evaluation.
2. Human resources as assets and liabilities.
3. Linking strategic and operational change.
4. Leading change.
5. Overall consistency.

Like other models, it recognises the importance of interacting components. It sees successful change as an outcome of the interaction between the content of change ("what" – or the objectives, purpose and goals); the process of change ("how" – or implementation); and the organisational context of change (the internal and external environment) (Iles et al., 2001:32).

The Pettigrew et al (1992) study in the UK tried to identify explicit factors associated with the achievement of a higher rate of strategic service change by health care organisations. Their study included eight health care organisations, both public and private, consisting of four matched pairs of organisations which faced a similar change agenda but demonstrated different results. Generally, they found health care organisations to be much less competent in managing strategic change than other types of organisation, but

it depended mainly on the context in which they operated. Iles et al (2001:32) identified the following eight factors that are interrelated and interlinked. These factors serve to differentiate the higher from the lower performers.

1. Quality of the local policy.
2. A multidisciplinary team that leads change.
3. Co-operative inter-organisational networks.
4. Supportive organisational culture.
5. Environmental pressure, moderate, predictable, and long-term.
6. Clarity of goals and priorities.
7. Positive pattern of managerial relations.
8. Fit between the change agenda and the locale.

Iles et al (2001:32) points out that:

“This model is different than the 7S model, there in that is no cause and effect relationship between the eight factors”.

Armed with this knowledge of change models, managers can optimise and tailor their change programmes in order to maximise chances of success.

3.2.9 Lessons Learned from these Theories. The change models described in the previous section identify many factors which may affect the success of change interventions.

Lewin argues that organisations are systems that are held in equilibrium by equal and opposing forces. For the organisational change to occur, there must be either a strengthening of the driving forces (policy, multidisciplinary team, clarity of goals) or a weakening of the restraining forces (organisational culture, lack of resources, complexity) (Garside, 1998:9). 'Force field' model describes organisational change as one process that consists of three phases: unfreezing the current organisational equilibrium, changing to a new stage, and refreezing to the new position.

Force field analysis connects process to outcome variables. In addition to identifying the order, force field analysis estimates the relative effect of each process variable on the outcome variable. In force field analysis, the outcome variable is placed in the centre (AbdelHak et al., 1996:455). Process variables can then be identified by both causal ordering, if desired, and expected strength of effect, either positive or negative, on the outcome variable. As well as estimating the relative effect of each variable, both factors that can facilitate and factors that impede change are particularly identified. AbdelHak et al (1996:455) states that "force field analysis is particularly useful in developing strategic plans when resource allocation must be prioritised".

Force field analysis suggests strategies for reducing the effect of forces which can prevent change occurring (Iles et al., 2001:43). Lewin argues that reducing the restraining forces is a better strategy for implementing change.

He also adds that increasing the driving forces will meet with an equal increase in restraining forces. Lewin's work is referred to widely in the change management literature. Furthermore, empirical research supports Lewin's claim that working to reduce the resisting forces is more effective than efforts to increase the driving ones (Zand, 1995).

Beckhard et al (1987) describe the transition state between the current state and the future state. Kanter et al (1992) also discuss the same main themes emerging during these phases. Organisations must recognise that "the old way of doing thing is no longer acceptable" (Garside, 1998:9). Second, the organisation creates a new vision, and gaining commitment from the top management to achieve this vision. Finally, once change priorities have been agreed to, these must be refrozen. A force field analysis can be used to identify actions that would enhance successful change intervention.

Kanter et al (1992) also adds that change is successful when the whole organisation contributes to the effort. People within the organisation can be divided into three groups; change strategists, change implementers, and change recipients. The change strategists could be the top management and professional leadership, the implementers are the project coordinators, and the change recipients are the users.

Although Lewin's force field model has much to teach practicing managers, it does little to consider several issues central to the process of managing change (Garside, 1998). For the model to be of use, the forces need

to be identified wisely, carefully, and objectively, and the methods used to address the resisting forces need to be creative. By contrast, the field of innovation research (Rogers, 1983) emphasises the tendency of individuals to change and implement new ideas, products, or processes, and furthermore suggests that this tendency differs between different individuals.

According to Rogers (1983), the “social system” – i.e. the organisation in which a new “innovation” is to be implemented – may affect the “diffusion”, i.e. the implementation process of the system. According to Rogers (1983), the innovations that have relatively great advantages are compatible, have trialability, are not complex, and are observable, will be adopted more quickly than innovations that do not meet these criteria. These attributes could, in terms of Lewin’s theory, be driving or restraining forces to successful implementation of any innovation.

Iles et al (2001:50) states that:

“Innovation research provides insight for change management in three ways.

Firstly, it recognises the properties of innovation that are likely to meet with success. Secondly, concerns the organisational context plays an important role in the adoption of innovation and change.

Three environmental features have been linked with the tendency to innovate:

- Rapid change and heterogeneity in an organisation's operating environment
- Effective external communication networks
- Presence of "boundary-spanning" individuals (Slappendal, 1996)

The third insight that innovation research provides is that different individuals have attitudes to change. These individuals can then be categorised in terms of their tendency to change as: 1) Innovators, 2) Early adapters, 3) Early majority, 4) Late majority, and 5) Laggards".

It is important for those managing change to expect possible reaction to change initiatives. They should be prepared to overcome resistance (Kotter et al., 1979; Cumming et al., 1997). In addition to the previous factors, an individual's reactions are greatly influenced by contextual factors involved. Resistance to change by organisational stakeholders is a strong restraining force. Kotter et al (1979), Kanter et al (1992); and Dawson (1996) illustrate some of the most common reasons for resistance to change amongst the stakeholders. Most include the following factors: 1) Increased workload, 2) Change fatigue, 3) Low tolerance for change, 4) Lack of trust, 5) Uncertainty, 6) Loss of control, and 7) Confusion.

Some authors believe that organisational changes introduced by change initiatives create some level of threat that varies in its intensity, from

loss of job due to downsizing or reduction in employees to simply the disturbance of the routine operations of the organisation (Pfeffer, 1982).

These factors focus on resistance to change at an individual level. On the other hand, it is important to note that there are many interrelated factors which may contribute to resistance at organisational levels: for example, organisational structure, culture, and policy (Miles, 1987; Child, 1984).

The 7S Model is considered useful by many analysts because it can form the basis for a rigorous consideration of what an organisation wants to achieve.

Many critics consider the 7S model important because of its twofold emphasis on “soft” organisational components (these are style, staff, skills, and shared values) as well as the “hard” (which are strategy, structure, and systems). This model translates academic research into managerial practice, acknowledging the notion that organisational culture is the “normative glue that holds the organisation together” (Hughes, 1996:294).

As a result, the idea that organisations are independent social systems whose values, symbols, rituals, myths, and stories exert a powerful influence on the behaviour of members became part of mainstream thinking about organisations. It has been criticised, however, as providing a one-sided perspective of organisational culture, focusing solely on the similarities that bind an organisation, and ignoring the conflicts that can also shape an organisation’s culture (Martin, 1992; Hughes, 1996).

The 7S model is used widely as a basis for a rigorous and comprehensive consideration of an organisation, in relation to what the organisation is trying to achieve, because it generates important insights and supports change programmes that deal with causes rather than symptoms.

The Pettigrew et al (1991) model has been generally used in analysing and learning retrospectively from change programmes in organisations (Pettigrew, 1985; Pettigrew et al., 1992; Buchanan et al., 1992; Peppard et al., 1995).

The Pettigrew et al model was developed in order to manage change within organisations. Garside (1998) argues that the Pettigrew et al (1991) model is useful for small scale implementation. The scale of change is another important consideration when drawing lessons from these models. Small, focused interventions may have an equal potential for success in most contexts, while more ambitious change initiatives are challenged, diverted, and deflected by the inherent complexity and power dynamics of organisational life.

There is increasing awareness in the literature that there are factors that might make the culture of the organisation more conducive to change (Iles et al., 2001). In this sense, organisational culture has been found to be a strong mediator of successful change implementation. In addition, there is a need to acknowledge both the positive and the negative roles that individuals

and teams can play in affecting change in organisations that include a range and diversity of stakeholders (Rycroft-Malone et al., 2004).

Top management in an organisation needs to accept that people in a system think differently, that they have to have the ability to respond efficiently to these differences, and to work towards mutual trust and understanding based on transparency and honesty.

Systems need energy in order to change. The energy or the drivers of change can take many different forms: change can be generated from inside the organisation or from outside.

Most knowledge of barriers to and incentives for change is not derived from well designed prospective studies, but rather from observational studies and theoretical reflections (Grol et al., 2004:11). Most of the theories overlap and most are not supported by scientific research on their ability to facilitate change in complex organisations. However, they are useful for identifying potential barriers to change, including organisational culture, organisational issues and personnel issues.

Greenhalgh et al (2004:38) indicates in her report that:

“Rogers’s theory is helpful when considering individual behaviour but it is less useful at an organisational level”. She adds that “it is clear that the guideline only becomes an organisational innovation if it precipitates some kind of planned change in the structures and systems in the organisation.

People in the organisation need to do more than perceive the guideline as new; they must do something – adopt new roles, make different decisions, form new relationships, use new technology, develop new systems, and so on”.

3.2.10. How can we implement change successfully? So, what exactly are the organisational and cultural issues that may affect change initiatives? The study will explore how these issues can be a major factor in how successfully an organisation achieves its goals (in this case, implementing HIS). We will begin with an overview of organisations and organisational structure that defines each and puts organisational structures in the context of organisational goals and strategy. Next, we will discuss the two major perspectives on organising: the structural configuration view and the operational view. Then, we will discuss the often confusing concepts of leadership and authority, and present an alternative view of authority. Afterwards, we will discuss some of the classic views on how organisations should be structured. Finally, there will be a discussion of management support, quality of planning, quality of communication, end users involvement, organisational resistance to change, individual resistance to change and incentives.

3.2.11 Definition of an organisation. An organisation is a group of people working together to achieve common goals (Draft, 1986). Top management determines the direction of the organisation defining its purpose, establishing the goals that will meet that purpose, and formulating strategies to

achieve those goals (Montanari et al., 1990). Organisational goals are objectives that management seeks to achieve while pursuing the purpose of the organisation. Goals motivate people to work together. Although each individual's goals are important to the organisation, the organisation's overall goals are the most important. Goals keep the organisation on track by focusing the attention and actions of the members. They do not address past success or failure: rather, they force members to think about and plan for the future. Finally, strategies are specific action plans that enable the organisation to achieve its goals and thus its purpose. They involve the development the organisation's structure and processes to do the organisation's work.

Organisational Structure. Organisational structure is a system of task, reporting, and authority relationships within which the work of the organisation is done (Draft, 1986:13). Thus, structure defines the form and function of the organisation's activities. Structure also defines how the parts of an organisation fit together, as in an organisation chart. The purpose of organisational structure is to order and coordinate the actions of employees to achieve organisational goals. The premise of organised effort is that people can accomplish more by working together than they can separately. The requirements of organisational structure are similar. First, the structure must identify the tasks or processes that must be performed for the organisation to reach its goals. This is often called division of labour. Even small organisations (those fewer than one hundred employees) use division of

labour (Bryman et al., 1983). Second, the structure must combine and coordinate the divided tasks (Joseph et al., 1983). Every organisation addresses these two fundamental requirements (Mintzberg, 1979). The various ways that they do so are what makes one organisational structure different from another. Organisation structure can be analysed in three ways. Firstly, we can examine its arrangement, or its size and shape. Secondly, we can analyse its operational aspects or characteristics, such as separation of specialised tasks, rules and procedures, and decision making. Finally, we can examine responsibility and authority within the organisation.

A- Structural Configuration. The structure of an organisation is most often described in terms of its organisational chart. A complete organisation chart shows all people, positions, reporting relationships, and lines of formal communication in the organisation (see Figure 2.2, MOH chart). Large organisations may need several charts to show all positions, for example, one chart may show top management, including the board of directors, the chief executives, the president, all vice presidents, and important headquarters staff units. Subsequent charts may show the structure of each department and staff units.

B- Division of Labour. Is the extent to which the organisation's work is separated in to different jobs to be done by different people. Division of labour is one of the seven primary characteristics of structuring described by Max Weber (Weber, 1947).

Division of labour has also been found to have both advantages and disadvantages. Modern managers and organisation theorists are still struggling with the primary disadvantages: division of labour often results in repetitive, boring jobs that undercut workers' satisfaction, involvement, and commitment (Carroll, 1984). In addition, extreme division of labour may be incompatible with new integrated computerised technologies that require teams of highly skilled workers.

Leadership. "Effective leadership can sharply reduce the behavioural resistance to change". Lorenzi et al (1997:116)

One of the most recent and most important issues in leadership today is the ways in which leadership and management are different. Although good managers should be effective leaders, it is important to note that leadership and management are not the same thing.

Management is concerned with ensuring that goals are clearly defined, that resources are structured in a way that helps accomplish goals, and that systems are in place to ensure that deviations from desired performance are brought back into conformance with goals (Bach et al., 1969). The results of effective management are order, predictability of systems, and efficiency. Management is about doing things the right way. Leadership is something different.

Leadership is about setting direction and providing a vision or hope for the future. It is about aligning groups towards the accomplishment of common

goals, and it is also about motivation (AbdulHak et al., 1996). The result of good leadership is change rather than order or predictability. Innovation rather than efficiency is the result of leadership (Tompkins, 1982). This is not to suggest that management or leadership is more or less important than the other. Successful organisations require both, but these qualities are not always found in the same person. When organisations have management and leadership, they do the right things as well as do things right. They are efficient and they are also effective (Bennis et al., 1966).

Leadership is a difficult job, and leading is one of the most challenging aspects of what managers do. To be effective, managers must develop leadership skills and the ability to determine what actions are likely to motivate and inspire different people in different job situations (Tompkins, 1982).

Leadership clearly is a situational process with social, cultural and political dimension. Effective leadership behaviour then is developed through application in real world situations. Individuals grew as leaders as they interact with followers in confronting problems and opportunities in their organisational and broader environments.

The implication of this view of leadership is that potential leaders owe their success in exercising leadership independent of their education and other life experiences. It is evident that no educational program alone can guarantee the development of effective leadership. However, trait-based studies of

leadership and subsequent studies of leadership behaviour have identified a set of behaviour and characteristics that are often associated with those accepted as leaders (e.g. persuasive communicators, visionary, action-oriented). These and other behavioural attributes can be reinforced through curricular emphasis on the theory and practice of communication, decision making, conflict management, and other aspects of leadership opportunities within the academic institution or the broader community.

Authority and Responsibility. Authority is power that has been legitimised within a specific social context (Pfeffer, 1982). Only when power is part of an official organisational role does it become authority. Authority includes the legitimate right to use resources to accomplish expected outcomes. Responsibility, on the other hand, is an obligation to do something with the expectation that some act or output will result. Responsibility ultimately derives from the ownership of the organisation. The owners hire or appoint a group, often a board of directors, to be responsible for managing the organisation, making decisions, and reaching the goals set by the owners. The authority to make decisions may be restricted to the top levels of the organisation or dispersed throughout the organisation.

Authority is linked to responsibility because a manager responsible for accomplishing certain results must have the authority to use resources to achieve those results (Miner, 1984). The relationship between responsibility and authority must be one of similarities: that is, the authority

over resources must be sufficient to enable the manager to meet the output expectations of others.

But authority and responsibility differ in important ways.

Responsibility cannot be delegated down to others, but authority can. One complaint often heard from employees is that they have too much responsibility but not enough authority to get the job done. This indicates a lack of similarity between responsibility and authority. Managers are usually quite willing to hold individuals responsible for specific tasks, but are reluctant to delegate sufficient authority to do the job.

The delegation of authority to make decisions to lower-level managers is common in organisations today, but giving lower-level managers authority to carry out the decisions they make is essential. Managers typically have difficulty in delegating successfully.

Structure and Operation. Some important aspects of organisational structure do not appear on the organisation chart and thus are quite different from the organisational chart discussed in the previous section. In this section we will examine the structural policies that affect operations and prescribe or restrict how employees behave in their organisational activities (Child, 1984). The two primary aspects of these policies are centralisation of decision making and formalisation of rules and procedures.

Centralisation. The first structural policy that affects operations is centralisation, wherein decision-making authority is concentrated at the top of

the organisational hierarchy. This structural aspect is in contrast to decentralisation, in which decisions are made throughout the hierarchy (Child, 1984). Increasingly, centralisation is being discussed in terms of participation in decision making (Hall, 1982). In decentralised organisations, lower-level employees participate in making decisions.

Decision making in organisations is more complex than indicated by this simple centralised/decentralised classification. One of the major distinctions to be made here is that some decisions are relatively routine, and require only the application of a decision rule. These decisions are programmed decisions, whereas those that are not routine are non-programmed. The decision rules for programmed decisions are formalised for the organisation. The difference between programmed and non-programmed decisions tends to cloud the distinction between centralisation and decentralisation. For even if decision making is decentralised, the decisions themselves may be programmed and tightly circumscribed.

If employees participate little in decision making, the organisation structure is centralised, regardless of the nature of the decision being made. At the other extreme, if individuals or groups participate extensively in making non-programmed decisions, the structure can be described as truly decentralised. If individuals or groups participate extensively in making programmed decisions, the structure is said to be formalised decentralisation. Formalised decentralisation is a common way to provide decision-making

involvement for employees at many different levels in the organisation while maintaining control and predictability.

Participative management has been described as a total management system in which people are involved in the daily decision making and management of the organisation. As part of an organisation's culture, it can contribute meaningfully to the long-run success of the organisation (Dension, 1984). It has been described as effective, and even as fact morally necessary in some organisations. Thus, for many people, participation in decision making has become more than a simple aspect of organisational structure. Caution is required, however, because if middle managers are to make effective decisions, as participative management requires, they must have sufficient information (Leonard et al., 1989).

Formalisation. is the degree to which rules and procedures shape employees' jobs and activities. The purpose of formalisation is to predict and control how employees' behave on the job (Mitzberg, 1979). Rules and procedures can be both explicit and implicit. Explicit rules are set down in job descriptions, policy and procedures manuals, or in office memoranda. Implicit rules may develop as employees become accustomed to doing things in certain ways, which become standard operating procedures with the same effect on employee behaviour as written rules.

We can also assess formalisation in organisations by looking at the proportion of jobs that are governed by rules and regulations, and the extent to

which those rules permit variation. More formalised organisations have a higher proportion of rule-bound jobs and less tolerance for rule violations (Hage et al., 1967). Increasing formalisation may affect the design of jobs throughout the organisation (Moorhead et al., 1991) as well as employee motivation (Sherman et al., 1984), and work group interactions (Pearce et al., 1983). However, the specific effects of formalisation on employees are still unclear (Fairhurst, 1983).

Organisations tend to add more rules and procedures as the need for control of operations increases. On the other hand, other organisations are trying to become less formalised by reducing the number of rules and procedures employees must follow.

Ideal Bureaucracy. The earliest views on organisational structure combined the elements of organisation arrangement and operation into recommendations as to on how organisations should be structured. These views have often been called classical organisation theory, and include the “ideal bureaucracy” described by Max Weber, the classic organising principles set out by Henry Fayol, and the human organisation described by Rensis Likert. All three are universal approaches, but their concerns and structural prescriptions differ significantly.

Weber’s ideal bureaucracy is an organisational system characterised by a hierarchy of authority and a system of rules and procedures that, if followed, would create a maximally effective system for large organisations.

Weber claimed that the bureaucratic form of administration is superior to other forms of management with respect to stability, control, and predictability of outcomes (Weber, 1947). Weber's ideal bureaucracy had seven essential characteristics, including the division of labour, hierarchy of authority, and rules and procedures. Weber intended these characteristics to ensure order and predictability in relationships among people and jobs in the bureaucracy. But it is easy to see how these same features can lead and sluggishness, inefficiency, and red tape. If any of the characteristics are carried to an extreme or are violated, the administrative system can easily break down. Moreover, subsequent theorists have said that Weber's view of authority is too rigid and have suggested that bureaucratic organisations may impede creativity to innovation, resulting in a lack of compassion for the individual in the organisation (Miner, 1984). In other words, the impersonality that is supposed to foster objectivity in a bureaucracy may result in serious difficulties for both employees and the organisation. However, some organisations retain some characteristics of a bureaucratic structure while remaining innovative and productive.

Organisation Design. Organisation designs vary from rigid bureaucracies to flexible matrix systems. Weber, Fayol, and Likert each proposed an organisation design that is independent of the nature of the organisation and its environment. Although each of these approaches contributed to an understanding of the organising process and the practice of

management, none has proved universally applicable. In this section the researcher will introduce several contingency designs that attempt to specify the conditions, or contingency factors, under which they are likely to be most effective. These contingency factors include such things as the environment, the organisation's size, and the social system within which the organisation operates.

The contingency approach to organisation structure has been criticised as being unrealistic, in that managers are expected to observe a change in one of the contingency factors and to make a rational structural alteration. On the other hand, Donaldson has argued that it is reasonable to expect that organisations should respond to a lower organisational performance which may have resulted from a lack of response to some important change in one or several contingency factors (Donaldson, 1987).

Structural Imperatives and Strategy. The structural imperatives approach to organisation design has probably been the most discussed and researched contingency approach of the last three decades. The perspective was not formulated by a single theorist or researcher, and it has not evolved from a systematic cohesive research effort: rather, it emerged gradually from a vast number of studies that sought to address the question, "What are the compelling factors that determine how the organisation must be structured to be effective?" The two factors that have been identified as structural imperatives are size, and environment.

Organisation Size. The size of an organisation can be estimated in many ways. Usually, it is measured in terms of the total number of employees, value of organisation's assets, or physical capacity. The method of measurement is a very important consideration, although the different measures usually are correlated (Kimberly, 1976).

Research on the relationship between size and structure supports the view that larger organisations have a more complex structure than smaller ones. Blau et al (1971) indicated that large size is associated with greater specialisation of labour, a larger span of control, more hierarchical levels, and greater formalisation. Increasing size leads to more specialisation of labour within a work unit, which increases the amount of differentiation between work units, the number of levels in the hierarchy, and, consequently the need for more inter- group formalisation. With greater formalisation within the unit, there is less need for coordination among groups; thus, the span of control can be larger. Larger spans of control mean fewer first- line managers, but the need for more inter- group coordination may require more second- and third- line managers and staff personnel to coordinate them. Larger organisations therefore may be more efficient because of their large spans of control and reduced administrative overheads however, the greater differentiation between units makes the system more complex. Studies by researchers associated with the University of Aston in Birmingham, England, have shown similar results (Hall, 1982). Other studies have found that the relationship between size and

structural complexity is less clear than Blau's results indicated (Hall, 1982).

Some important aspects of organisation structure do not appear on the organisational chart and thus are quite different from the configurational aspects discussed previously. The next section examines the structural policies that affect operations and prescribe or restrict how employees behave in their organisational activities (Dalton et al., 1986). The two primary aspects of these policies are centralisation of decision making and formalisation of rules and procedures.

Environment. The organisational environment includes all the elements (people, economic factors, objects, and events) that lie outside the boundaries of the organisation. People in the organisational environment include competitors, legislators, and regulatory agencies. Economic factors might include, for instance, the growth rate of the gross national product. Objects include things such as buildings, vehicles, and trees. Events that may affect organisations involve occurrences of weather, elections or war.

Environmental Uncertainty. Not all forces in the general environment affect all organisations in the same way. Hospitals, for example, are very much influenced by government regulations and medical or scientific developments. Thus, the task environment is the specific set of environmental forces that affect the operations of an organisation. Obviously, this will vary substantially between organisations.

The environmental characteristic that appears to have the most influence on the structure of the organisation is uncertainty. Environmental uncertainty exists when managers have little information about environmental events and their effect on the organisation (Draft, 1986). Uncertainty has been described as resulting from complexity and dynamism in the environment. Environmental complexity is the number of environmental components that impinge on organisational decision-making.

Environmental characteristics and uncertainty have been important factors in explaining organisational structure, strategy, and performance. For example, the characteristics of the environment affect how managers perceive their environment, which in turn affects how they adapt the structure of the organisation to meet environmental demands (Yasai-Ardekani, 1986). The environment has also been shown to affect the degree to which a firm's strategy will enhance organisational performance (Prescott, 1986). The environments, and the organisation's response to it, are crucial to success.

An organisation attempts to continue as a viable entity in a dynamic environment. This environment completely encloses an organisation, and managers must be constantly concerned about it. The organisation as a whole, as well as departments and divisions within it, is created to address different challenges, problems, and uncertainties.

Organisational Strategy. Another determinant of the design of the organisation is the organisation's strategy. Strategy is the plans and actions

necessary to achieve organisational goals (Montanari et al., 1990).

After studying the history of seventy companies, Alfred Chandler drew certain conclusions about the relationship between an organisation's structure and its business strategy (Chandler, 1962). Chandler observed that a growth strategy to expand into a new product line is usually matched with some type of decentralisation, a decentralised structure being necessary to cope with the problems of the new product line.

Chandler's "Structure follows strategy" slogan seems to appeal to common sense. Yet it is contradicted by the structural imperatives approach, which recommends that design decisions be based on size and environment, not on strategy. This apparent clash has been resolved by refining the concept of strategy to include the role of the top management decision maker in determining the organisation's structure (Montanari et al., 1990). In consequence, this view inserts the managers/decision makers between the structural imperatives and the structural features of the organisation.

The structural imperatives are contextual factors within which the organisation must operate, and which affect the purposes and goals of the organisation. The top management's choices in organisational structure are affected by the organisation's purposes and goals, the structural imperatives, and the management's value system and experience (Bobbitt et al., 1980). Organisational effectiveness depends on the fit between size, the environment, the strategies, and the structure.

Another perspective on strategy/structure linkage is that the relationship may be reciprocal: that is, a structure may be set up to implement a strategy, to implement the strategy, but it may also affect the strategic decision making process via the centralisation or decentralisation of decision making and formalisation of rules and procedures (Fredrickson, 1986). Thus, strategy determines structure, which in turn affects strategic decision making. To put the point differently, a determinant of structure and long-term performance is when (and whether) the subunits doing the planning have distinctive competence in how to do planning (Boschken, 1990).

The role of strategic choice in determining organisational structure usually goes a step beyond the view that structure follows strategy. However, it has received less research attention than have the structural imperatives. And of course, some might simply view strategy as another imperative because it is a product of the analysis of the imperatives, and an articulation of organisation's direction, purpose, and plans for the future.

Top Management Commitment. The Commitment of top management is essential to the success of any change effort. As the organisation's probable dominant alliance, it is a powerful element of the social system, and its support is necessary for addressing control and power problems. For example, a manager who plans a change in the way tasks are assigned and responsibility is delegated in his/her department must notify top management and gain its support.

Quality of Planning. Planning determines the future direction an organisation will take. Planning involves setting goals and establishing priorities among all the activities that must be performed to achieve them (Simon, 1976). To fully understand the planning process, it is important to recognise that it has a number of dimensions, all of which are interrelated. There is only space here to introduce a few of the more important ones.

A. Stage Setting. The first stage of planning is stage setting or establishing the necessary conditions for successful goal setting at all organisational levels (Taylor, 1914:7). Stage setting is basically a time of gathering data in order to understand the environment the organisation faces, and its individual parts (Henderson et al., 1947).

For example, during the stage setting phase, it is important to ensure that everyone has a clear understanding of the organisation's mission or purpose, management vision, and top management's strategic objectives. It is also important to carefully scan the external environment to ensure that the opportunities and threats facing the organisation are clearly understood. It has been justifiably claimed that the keys to organisational success lie outside, not inside, the organisation. To manage successfully, it is critically important that top management understand the rules and the environmental conditions facing them.

Successful planners have to become proficient in assessing the external environment. The process of environmental assessment consists of

the following four steps (Fahey et al., 1994:250).

1. Environmental scanning: At this point, the planner views the information received from the environment, organises it so that it can be systematically analysed and identifies issues that are likely to be important for the organisation and his/her area of responsibility.
2. Environmental monitoring: Here the database is expanded, issues and trends are confirmed or determined to be less significant, and the rate of change with regard to each important issue is determined.
3. Environmental forecasting: Trends are extended, relations among trends and issues are determined and specified, and projections of alternative features are made.
4. Environmental assessing: This final stage involves continuously evaluating the significance of forecasted trends and the development of action plans for dealing with important external issues.

B. Goals Setting Stage. The process of management begins with goal setting. It is difficult to imagine how one could manage without well developed and well understood plans and goals (Hales, 1986).

There are many goals in organisations. Missions and visions are goals,

but they are usually not as operational or as specific as departmental or work unit goals. Whereas higher-level goals in organisations provide general direction, work group goals should be more specific. Effective work group goals possess three important characteristics (Locke et al., 1990). First, to be effective, work goals should be as measurable as possible. The goals should reflect organisational priorities as well as the personal priorities of work group members. Second, effective work group goals should be challenging yet attainable. Nothing is less motivational than unrealistic goals. An important psychological principle states that when goals are continually unrealised, the motivation to pursue them disappears. In other word, the act of accomplishing goals provides much of the motivation for continuing to pursue even more challenging objectives. Therefore, even though goals should not be easy to achieve, they should be attainable in order to maintain their motivational impact.

Third, work group goals should relate to the critical success factors of the organisation or those things that make the difference between success and failure.

C. Plan Development Stage. There are two types of planning in organisations: strategic and tactical planning. Strategic planning involves a philosophical analysis of how the organisation sees its mission, what it hopes to achieve or its vision, and innovative ways to of achieving the type of future that will ensure the organisation's survival and effectiveness. This is typically

the role of the top management, although it is critically important to involve people at all levels in this process.

Tactical planning involves most middle- and first- level managers in organisations. It is the action-oriented aspect of making sure that the future visualised in the strategic plan is accomplished. Sometimes tactical plans are referred to as operational because they attempt to convert the abstract and philosophical aspects of the strategic plans into operations or actions that can be scheduled, monitored, and adjusted in the light of changing conditions and priorities. Managers at all levels of organisations engage in long-range, intermediate, and short range planning. For most managers, long range planning involves a period of 5 years or so. Plans of this nature are not precise, but they at least force some thinking about where the organisation wants to be in 5 years.

Intermediate-term plans are for longer than one year but less than 5 years. Intermediate-term plans usually involve planning for major projects. The implementation of a new administrative software system requires intermediate-term planning. Project planning requires a great deal of careful scheduling to ensure that all necessary steps in HIS implementation take place in the proper sequence (Bernard, 1938). Intermediate range planning is built around the following major activities:

- Listing the activities that are necessary to accomplish a project
- Scheduling the time required to accomplish each activity listed

- Evaluating the most effective means of accomplishing each of the required activities.
- Short range or budgetary planning is the third type of tactical plan.

Planning is often considered an inefficient activity by action- oriented managers and employees. However, if done carefully and systematically, planning can reduce rework and increase the overall efficiency of organisational activities (Luthans, 1984). For planning to be effective, it must involve many people in the formulation and implementation processes. One of the most important aspects of the effective implementation of plans is to ensure that planning flexibility is built into the planning process.

Regardless of how well we scan the environment, strategically determine the mission and vision of the organisation, and coordinate long-, intermediate-, and short-term plans, unanticipated events are certain to take place in the environment of health care organisations. For this reason, good plans are plans that can be easily adjusted in light of changing conditions. It is usually prudent to have contingency plans available to allow for the most likely changes.

Quality of Communication. Communication is defined in terms of transfer of understanding between two parties (e.g. individuals or organisations) (Peters et al., 1984). Under this type of definition, communication may be verbal, nonverbal, or written. Although this definition

of communication is simple, understanding the communication processes can be complex and difficult. Communication models examined in this study focus on both interpersonal and organisational levels of communication. The most common type of communication models directly examine interpersonal communication patterns. These models are based on the direct transfer of information from an initiator or source to a receiver, who immediately translates the message and provides feedback (Haimann, 1989; Peters et al., 1984; Westly et al., 1957; Huffman, 1990). In contrast, an alternative model of communication introduced in this study focuses on the simultaneous exchange of verbal and non-verbal information. This model suggests that the communication process is not one of initiators and receivers but one in which all parties involved in the communication processes are viewed as initiators. This model may be expanded to patterns of organisational communication by emphasising both written and non-verbal forms of communication.

Such a model of communication takes a more holistic view of how understanding and meaning are communicated than the more traditional models.

End Users Involvement. End users involvement refers to participation in the system development process by representatives of the largest user group (Ives et al., 1984:587). Researchers in organisational behaviour, including group problem-solving, interpersonal communication, and individual motivation, claim that user involvement should lead to improved chances of

successful system implementation (Ives et al., 1984:587).

It is almost an axiom of the HIS literature that end user involvement is a necessary condition for successful development of computer-based information systems (Ives et al., 1984:586). Some of these claims are stark and explicit:

“User participation is critical to the success of the MIS project”

(Powers, 1973:156).

“In relation to other factors, e.g., top management support, competence of MIS staff, quality of goal setting, user involvement seems to be the only factor which is consistently related to the quality of final outcomes”

(DeBrabander et al., 1977:191).

“The middle managers role is critical in the design, conversion, and operation of the MIS. Many writers refer to the need for middle management participation, but token participation is not enough”

(Guthrie, 1974:45).

“There is too little involvement in developing a system and too little ownership of the resulting system. These conditions lead to lack of use and dissatisfaction with the system”

(Lucas, 1973:43).

“Participation by those who will be affected by the system is essential. This is especially true for operating managers”

(Dickson et al., 1977:11).

So, which users should be involved in HIS development? Participation is often advocated for employees who will be “primary users” of the system: that is, they use the output of the system. Other potential participants are “secondary users”, who generate system inputs or run the system. Mumford et al (1975) advocates participation by affected parties to improve both system quality and system acceptance. Others stress involvement by top level management (Edstrom, 1977a; Ference et al., 1976) or demonstrated top management commitment (Ginzberg, 1981). Powers (1973:157) emphasises that “the actual manager who is to receive and use the products of the project, not staff personnel, should be the participant”.

The type of participation may vary from direct participation, where all parties affected by the system are involved, to indirect participation, where employee representatives serve on decision-making committees. Both forms of participation permit affected employees to express their views and possibly influence the design of the Computer-Based Information System.

Mumford et al (1975:11) proposes three types of participation from the least to the most direct:

1. Consultative, where design decisions are made by the systems group, but the objectives and form of the system are influenced by the needs, especially job satisfaction needs, of the user department.
2. Representative, where all levels and functions of the affected user

group are represented in the system design team.

3. Consensus, where an attempt is made to involve all workers in the user department, at least through communications and consultations, through out the system design process.
4. The degree of involvement refers to the amount of influence the users have over the final product. At one extreme, system designers make assumptions about the requirements and ignore user input; at the other, users design systems and/or accept them on user- defined criteria of quality (Lucas, 1973:30).

Mumford's et al (1975:101) classification of participation implies an increasing degree of user influence in the design process from analysis to consensus design. The following set of categories provides examples of increasing degrees of user involvement:

1. No involvement: that is, when users are unwilling or not invited to participate.
2. Symbolic involvement: that is, when users input is requested but ignored.
3. Involvement by advice: that is, when users' advice is solicited through interviews or questionnaires (Bostrom et al., 1977; Lucas, 1975; Mumford et al., 1975).
4. Involvement by weak control: that is, when users have "sign-off"

responsibility at each stage of the system development process.

5. Involvement by including a user as a design team member (Gibson, 1977; Mumford et al., 1975; Olsen et al., 1981; Zmud, 1978), or as the official “liaison” with the IS development group (Gibson, 1977; Lucas, 1973; Olsen et al., 1981).
6. Involvement by strong control: that is, when users may pay directly for new development out of their own budgets, or the user’s overall organisational performance evaluation is dependent on the outcome of the development effort.

In short, user involvement in the design of HIS is enthusiastically endorsed in the prescriptive literature.

Organisational Resistance to Change. Just as change is inevitable, so is resistance to change. Paradoxically, organisations both promote and resist change. Because organisations are constantly buffeted by the forces of change, they must have some elements of permanence to avoid mirroring the instability of their environment. A commonly held view is that all resistance to change needs to be overcome, but that is not always the case. Resistance to change need not be eliminated entirely, but can be used and controlled for the benefit of the organisation. For example, by revealing a legitimate concern that a proposed change may not be good for the organisation, or that there might be other alternatives, resistance may alert the organisation to investigate and re-examine the change (Lawrence, 1970).

Resistance to change may come from the organisation, from the individual, or both. Determining the ultimate source is often difficult, however, because organisations are composed of individuals.

Daniel Katz and Robert Kahn have identified six major sources of organisational resistance: over determination, narrow focus of change, group inertia, threatened expertise, threatened power, and changes in resource allocation (Katz et al., 1978).

Over determination occurs because numerous organisational systems are in place to ensure that the behaviour of employees and systems is as expected to maintain stability.

Narrow focus of change can occur when efforts to create change in organisations adopt too narrow a focus. Any effort to force change in the tasks of individuals or groups must take into account the interdependencies among organisational elements such as people, structure, tasks, and the information system. For example, some attempts at redesigning jobs are unsuccessful because the organisation structure within which jobs must function is inappropriate for the redesigned jobs (Moorhead et al., 1991).

When an employee attempts to change his or her work behaviour, the group may resist by refusing to change other behaviours that are necessary complements to the individual's changed behaviour. In other words, group norms may act as a brake on individual attempts at behaviour change. This is known as group inertia.

A change in the organisation may threaten the specialised expertise that individuals and groups have developed over the years. A job redesign or a structural change may transfer the responsibility for a specialised task from the current expert to someone else, thus threatening the specialist's expertise and cementing his or her resistance to change. This is the phenomenon of threatened expertise.

Any redistribution of decision-making authority may threaten an individual's power relationships with others. Threatened power can create a great deal of resistance to change. If, for instance, an organisation is decentralising its decision making, managers who wielded their decision-making powers in return for special favour from others may resist the change because they do not want to lose their power base.

Groups that are satisfied with current resource allocation methods may resist any change that they believe will threaten their future allocations. Resources in this context can mean anything from monetary rewards and equipment to additional seasonal help to more computer time.

These six sources explain most types of organisation-based resistance to change. Many of these sources of resistance can be traced to groups or individuals afraid of something: resources, power, or comfort in a routine.

The following section therefore addresses the individual's resistance to change.

Individuals' Resistance to Change. Individual sources of resistance to change are rooted in basic human characteristics such as needs and perceptions. Researchers have identified six reasons for individual resistance to change: habit, security, economic factors, fear of the unknown, lack of awareness, and social factors.

Doing a job the same way every day is easy. If the steps in the job are repeated over and over, the job becomes increasingly easier. But learning an entirely new set of steps increases the job's difficulty. For the same amount of pay, most people prefer to do easy rather than hard work.

On the other hand, some employees like the comfort and security of doing things the same old way. They gain a feeling of constancy and safety in knowing that some things stay the same despite all the change going on around them. Thus, people who believe that their security is threatened by a change are likely to resist it.

Change may also threaten employees' steady pay cheques: workers may fear, for example, that change will make their jobs obsolete.

Some people fear anything unfamiliar. Changes in reporting relationships and job duties create anxiety for such employees. Employees become familiar with their boss, their job, and relationships with others within the organisations, such as contact people for certain situations. These relationships and contacts help facilitate their work. Any disruption of familiar patterns may create fear because it can cause delays and the impression that

nothing is getting accomplished.

Because of perceptual limitations, such as lack of attention or selective attention, a person may not recognise a change in a rule or procedure and thus may not alter behaviour. People may pay attention only to those things that support their point of view. This is called lack of awareness.

People may resist change for fear of what others will think: the group can be a powerful motivator of behaviour. Employees may believe that change will hurt their image, result in ostracism from the group, or simply make them different.

Incentives. Mannion et al (2002) defines an incentive as “a reward (or sanction) associated with a particular aspect of performance. An incentive can be purposive (in the sense that it has been explicitly put in place to induce beneficial behaviour) or accidental (an implicit by product of other managerial arrangements)”.

Mannion adds that individual rewards (or sanctions) can take many forms.

Most organisations use several different types of rewards. The most commonly used rewards are money (wages, salary, and commission), incentive systems, benefits, perquisites, and awards. These rewards are combined in a compensation package (Moorhead et al., 1998).

For most people, the most important organisational reward is money.

Obviously, money is important because of the things it can buy, but, as we just noted, it can also symbolise an employee's worth. A recent study found that out of 730 executives (2 for each of the 365 largest U.S. corporations), 467 reported incomes of more than \$ 1 million in 1992 (Business week, 1993). Clearly, monetary rewards play an important role in organisations. The rapid increase in executives' pay has been the subject of much debate over the past several years.

The student of organisational behaviour must understand the importance of money as a type of compensation. Employee compensation is a major cost of doing business: as much as 50 to 60 percent in many organisations. Pay is considered a major source of employee dissatisfaction (Lawler, 1981). As the most tangible part of the transaction relationship between the organisation and the individual, it also can be used as an instrument of change within the organisation. For example, salary adjustments might consciously be used to signal who is more valuable and who is less valuable to the organisation, or to clarify norms as to what is expected and what will be rewarded in the future.

Incentive systems usually promise additional money for certain types of performances. Plans oriented mainly toward individual employees may cause increased competition for the rewards and possibly some disruptive behaviours, such as sabotaging a co-worker's performance, sacrificing quality for quantity, or fighting over customers. A group incentive plan, on the other

hand, requires that employees trust one another and work together. Of course, incentive systems have advantages and disadvantages. Long-term compensation for executives is particularly controversial because of the large sums of money involved and the basis for the payments (Lawler, 1981). The successful implementation of an incentive program depends a variety of factors, including the history and the traditions of the organisation, the nature of the organisation's products or services, current political, economic, and legal conditions, and employee needs and perceptions about the system.

As can be seen from the preceding discussion, there is a host of organisational issues that may have affected HIS implementation in Kuwait. In addition to these organisational issues, however, there is a further variety of cultural issues that can be an important driver or inhibitor of change, and so on understanding the organisational culture is essential (Davies et al., 2000). So, what is culture? What are the different types of culture? This will be discussed in the following section.

3.2.12 What is the definition of culture? Organisational culture is an area of great importance, because the culture of the organisation might need to change in order for change to occur. The current social, political, and economic practices of any society are the product of its inheritance and traditions from the past, which influences its capacity to adopt new notions and practices which have emerged from human experience elsewhere. The

impact of the external cultural environment upon public service organisations is likely to be high. Hall (1982) argues:

“Unless the culture of the indigenous population is understood and appreciated, understanding of an organisation is likely to fail”.

Hall (1982:232) elaborates:

“It appears that the more routine and standardised the technology, the less the impact of cultural factors. The production of children’s toy automobiles is properly carried out in similar organisations in Hong Kong, London, Japan, Switzerland, or Tonka, Minnesota. When one moves to less routine technological operations, such as local government, the administration of justice or highway construction, the impact of culture is likely to be higher”.

This part of the literature review introduces various concepts of culture. In particular, the three types most appropriate to a workforce situation – organisational culture, national culture, and professional culture – are briefly defined. The implications of cultural diversity in the workplace are emphasised.

1- Definition of Culture. In 1985, Schermerhorn reported that there were already more than 164 different definitions of culture offered in the literature. Collier et al (1988) define culture as “a historically transmitted system of symbols and norms used by any symbol system that is bounded and salient to individuals”. Prosser (1978) defines culture “as the traditions, customs, norms, beliefs, values, and thought patterning passed down from generation to generation”.

Bauwens et al (1992) state that the implicit rules of culture may not consciously be recognised by individuals. They also say that individuals' interactions are partly determined by culture. Therefore, people's cultural traditions are inseparable from the way in which they link and interconnect with each other.

Helman (1984) draws a picture of culture as a common inherited lens of shared concepts and meanings that members in a given society use to perceive the world. It also guides their behaviour and determines their emotional reactions in daily living. In interacting with others, cultural background shapes everybody's perceptions, and culture acts as the starting point for that.

Also, Hofstede (1994) believes that culture is not inherited but learned. It is not driven from the genetic pool, but through interaction with the social environment. He also adds that culture could be derived from human nature on one hand, and from and the individual's personality on the other. He stresses the importance of distinguishing one from the other. Precise borders and limits between human nature, culture, and personality are still a matter of discussion among social scientists.

Leininger (1985) defined culture as the learned, shared, and transmitted values, beliefs, norms, and lifestyle practices of a particular group, that guides thinking, decisions, and actions in patterned fashions.

2- Types of Culture. The following segment of the literature review

focuses on organisational culture, national culture, and professional culture, both as concepts of culture and as the three types of culture most appropriate to work situations.

Organisational Culture.

“We simply cannot understand organisational phenomena without considering culture both as a cause and as a way of explaining such phenomena” Schien (1985:311).

The first type of culture, then, is organisational culture. For the purposes of this study, the definition of organisational culture is “a system of shared meaning held by members that distinguishes the organisation from other organisations”. Researchers of organisational development are increasingly recognising and appreciating the implication of organisational culture as a way of understanding, describing, and explaining complex social phenomena. Schien (1985) considers organisational culture as the key to organisational supremacy. By contrast, the definition offered by Baker only settles for the notion that “organisational culture is a set of shared meanings that make it possible for members of the organisation to understand their organisation and act accordingly, within their organisation.”

Campbell (1970) formalised seven characteristics regarding the culture of organisations. When mixed and matched, they exploit the essence of any organisation’s culture. These are:

1. Individual Autonomy: The degree of responsibility,

independence, and opportunities for exercising initiative by individuals in the organisation.

2. **Structure:** The degree of rules and regulations, and the amount of direct supervision that is used to oversee and control employee behaviour. (e.g. policy and regulation, accountability)
3. **Support:** The degree of assistance and warmth provided by managers to their subordinates (e.g. managerial support).
4. **Identity:** The degree to which members identify with the organisation as whole rather than with their particular work group or field of professional expertise.
5. **Performance-Reward:** The degree to which reward allocations in the organisation (e.g., salary increases, promotions, and rewards) are based on employee performance criteria.
6. **Conflict Tolerance:** The degree of conflict present in relationships between peers and work groups as well as the willingness to be honest and open about differences.(e.g. conflicts of interest, pleasant relationships between different groups)
7. **Risk Tolerance:** The degree to which employees are encouraged to be aggressive, innovative, and risk seeking (e.g. personal accomplishment).

One can formulate an image of an organisation's culture by analysing each of these seven characteristics in an organisation, which can each be evaluated on a continuum from low to high. This portrait or image becomes the basis of the shared understanding that members have about the organisation, the way functions are performed, and commonplace behaviour among members.

Organisational culture is a descriptive term. The main focus here is on the way workers recognise and interact with the above seven characteristics, not on whether they like or dislike them. Research into organisational culture also takes into account a measure of how workers view their organisation. This mechanism of measuring is highly structured and includes whether it rewards innovation or stifles conflicts (Robbins, 1986).

Abbott (1988), a corporate trainer and specialist in intercultural management, stresses the importance of understanding the values of culture of people in the workplace: anyone who works in a cross-cultural management setting must work from the paradigm that their basic assumptions about how people behave and get things done, will be challenged. The greatest set back is to look at differences as weaknesses and to assume that other people have to change and not you (Schermerhorn, 1985). For example, today, changing immigration and demographic patterns in the U.S.A. have brought more Asians in to the workforce, and women are now more significant players than ever before Abbott (1988). Therefore, management strategies have had to

become more accommodating towards these groups.

Several social-psychological explanations for the linkages between the management team's demography and organisational performance have been proposed. Murray (1989) used social integration and communication patterns to predict the form of the relationship between team heterogeneity and organisational performance. He argued that team heterogeneity might lower performance in stable environments because the team would be less cohesive and require more formal communication. Similarly, Michel et al (1992) used the concept of social integration to explain links between average team tenure and diversification strategy and performance. They proposed that the length of team tenure is a proxy for the level of team cohesion and that cohesion in turn affects performance.

Several demographic studies have argued that team heterogeneity is negatively related to social integration and communication. Wiersema et al (1992) maintain that the unfamiliar language of people with dissimilar experiences, backgrounds, beliefs and values will presumably lead to difficulties in communication and diminished team integration. As Tice (1990) concludes, to work effectively across cultures, it is necessary to understand a group's history, value orientation, normative patterns, family and community patterns, as well as the detrimental effects of oppression those group members may experience.

National Culture. The second type of culture to be considered here is

national culture. National culture has been defined in many different ways by different researchers, but all definitions share some common grounds. Mullins (1996), for example, defined it as follows: “A distinctive pattern of values and beliefs which are characteristic of a particular society or sub-group within that society”.

These values and beliefs are apparently transmitted from one generation to another through the socialisation process, including family interactions and/or formal education. In an intriguing sense, we may view people as carrying culture around with them. Robbins (1986) has pointed out that “most people are unaware of just how their culture will affect them. Culture is like fish and water. It is there all the time and the fish are oblivious to it.”

Studies have demonstrated that the relative importance of different needs varies across cultures. They show that the ways in which various needs manifest themselves are quite different in different national cultures. George Winston found considerable differences in the need for achievement among those from different cultural backgrounds. He observed that achievement, for example, was valued in North America much more than in South America (Winston, 1994). Such findings should be important data for managers in multicultural environments.

Hofstede (1983) found that nationality was important to management due to political, sociological, and psychological differences reflected in

culture. In his study, which ranged across fifty countries, he noted numerous implications for international managers. In general, one major point that can be deduced from this work is that management is not the same worldwide, nor is it becoming the same around the world. Instead, he demonstrates many differences between national cultures.

To demonstrate the comparison between national culture and organisational culture, Hofstede (1994) explains that organisational “cultures” are a phenomenon per se, different in many respects from national cultures. Although both a nation and an organisation are social systems, they are of different natures. This is true if only because the organisation’s members usually join this organisation by their own volition. They are also only involved in it during working hours, and may one day leave it.

How can National Culture affect Leadership and Management Patterns? Enshassi et al (1991) conducted an empirical study in the area of national cultural diversity. The purpose of their study was to examine the effectiveness of site managers when managing multicultural workforces in the Middle East. The data for the study were obtained from 79 site managers working with 41 international and 38 local organisations, in six Middle Eastern countries. The study concluded that the successful site manager is one who recognises and understands the national cultural differences of subordinates and combines leadership dimensions, task, and employee orientations.

Professional culture. The third type of culture relevant to this study is professional culture. Moore et al (1991:56) defines a profession as something that:

“Involves the application of general principles to specific problems, and it is a feature of modern societies that such general principles are abundant and growing”.

In contrast, a vocation, as he explains, is “the antithesis of a profession” because it is “based upon customary activities and modified by the trial and error of individual practice”. Moore argues that professions are highly specialised occupations, and that:

“The two primary bases for specialisation within a profession are (1) the substantive field of knowledge that the specialist professes to command and (2) the technique of production or application of knowledge over which the specialist claims mastery”.

Cole et al (1995) draws an image of how a professional culture can be created in health services organisations by stating that “the use of training in the traditional sense tends to establish skills that are particular to a specific profession, such as counselling skills in social work practice, or surgical techniques in medicine. The skills tend to promote the insular nature of professions, and as a consequence produce a professional culture that relates only to those in the profession”. In any health care organisation there is a workforce that consists of a range of such professions. To make the workforce a coherent group, Cole et al (1995) stresses the importance of creating a culture in health care organisations that rises above narrow professional

cultures, and which also identifies with the organisation as a whole.

In many organisations, serious conflict occurs when managers press professionals to behave in ways that professionals do not want to. This can lead to professionals presenting acute problems for managers of public service organisations. One of the reasons for this is the interrelation between professionalism and autonomy. Harrison (1995) draws attention to the potential conflict between the notions of management and professionalism. The former is interpreted as getting other people to do things; the latter as employing one's own judgment about what to do and how to do it. Conflict will occur when managers press professionals to behave certain ways when the latter are unwilling to do so.

Harrison (1995) looks at issues of professionalism in welfare state organisations, particularly health care settings. He emphasises the functionality of professional arrangements for clients and patients. A patient should entrust professionals with their interests, as a patient lacks in knowledge of health problems and the appropriate treatment. For professionals to perform their duty and ensure that patient trust is not exploited, two professional freedoms are essential. One is that the professionals must be free from outside interference in practising their expert knowledge in the interest of patient. The second is that the profession, as a body, must have the power and means to be self-regulating. Experience has proven that patients need to be protected from malpractice and incompetent

practitioners, but only the profession itself ought to provide such protection, since only it possesses the necessary technical knowledge. Harrison (1995) states that the professionals themselves employ this view of professionalism, maybe because it closely resembles the familiar structure of training and practice, and/or because it positions them on a moral high ground.

Cole et al (1995) focuses directly on the ways in which health and social service organisations invest in their workforces, pointing out the emerging conflict between the professional culture and the organisational culture. In organisations that consist of a collection of cultures, each of which identifies with a particular profession and which adheres to a strict hierarchy, each culture is being subsumed by an overarching culture that has little or no commitment to any specific profession. Organisational culture will challenge the traditional roles of professionals as it generates its own influence. It will also minimise their power bases, and consequently their level of impact on the performance of the organisation.

3. Cultural Diversity in the Health Care Organisations. “Diversity” is a relatively recent term that first started appearing in the literature in the mid-1980s (Gordon, 1991), and has recently become a topic of focus in human resource management. Although there is a substantial argument for “diversity management” in health care, there is a lack of information available on how best to manage the available and upcoming workforce. Most scholars comment on demographic trends, giving examples of these changes, which

include increasing numbers of minority members, especially at the service level, and cultural influences (Cejka, 1993).

This part of the literature review debates two critical aspects of cultural diversity in health care organisations. These are, respectively, hospitals as employers, and as providers of service in a diverse society. Sabatino (1993) reported that, to date, health care employers have not yet mastered the management of cultural diversity. The issue has not received the resources or attention that are allocated to technology or continuous quality improvement. Moreover, the attentiveness to cultural diversity is not being prioritised in the employment practices of health care providers.

Hospitals can be considered as pluralistic organisations. They encompass various groups such as nurses, physicians, technicians, and managers. Some members of these groups will be immigrants, and members of a variety of ethnic origins, with a diversity of interests and subcultures. Diversity is considered by some authors as having the potential to be problematic, because in such cases people are unlikely to share experiences and attitudes, or even to fully understand one another (Schwartz et al., 1993).

Burner (1990) and Thomas (1990) view cultural diversity as a latent, disturbing aspect in a work environment. One of the key problems that might be faced due to cultural diversity is miscommunication. This could be due to language barriers, reluctance to admit to a lack of understanding of instructions, inadequate training in psychological skills, and lack of staff to

understand the impact that differing cultural values may have on their own way of providing health care. Language and literacy issues are common communication difficulties.

Communication is a particular problem for an expatriate workforce. It is a common practice that “the dependence of performance ratings and promotions upon the ability to communicate” both verbally and in writing is emphasised in many organisations (Gordon, 1991).

Expatriate health professionals could be the subject of unequal treatment at work. In the United States, reports of occupational discrimination against non-whites who were educated outside the USA have included the threat of deportation for nurses who refused to work for lower salaries or take extra shifts (Pizer, 1981).

Many authors speak of the rationale behind diversity management. The literature highlights enhanced communication, an awareness of those factors deemed necessary for motivation and increased productivity, preferred leadership styles, and increased sensitivity to differences of work-related values as positive outcomes for managing diversity (Hofstede, 1991).

To effectively manage a diverse workforce, it is necessary first to recognise and acknowledge that there are differences between employees. No longer can managers expect every employee to think and act in the same manner. Processes that hinder programs and promote negative behaviour from

the majority group should be discouraged at all levels of management, especially at the executive level that influences policy (Chemers et al., 1993).

Any organisation has a responsibility to remove opposing diversity influences at three levels: the individual employee, the employee's workgroup, and the organisational structure itself. Primary barriers to successful integration of diverse personnel into the workforce include stereotyping, and the negative attitude people have towards those unlike themselves.

4. Implications of Workforce Diversity. Diversity in the workforce has the potential to create conflict in an organisation. Some of the possible problems are described here. Communication difficulties include the language and literacy issues that may arise. Communication is a particular problem for an expatriate workforce. As mentioned, "the dependence of performance ratings and promotions upon the ability to communicate" both verbally and in writing is often emphasised in organisations (Gordon, 1991:20).

Stereotypes represent an additional problem resulting from workforce diversity. Traditional white male managers, in many cases, trust those workers most like themselves, more than they trust other groups (Metz, 1990). To reiterate, Gordon (1991) summarises the attitudes of such managers thus: "Asians are not leaders and lack aggressiveness, blacks are not technically competent, and females are either too passive or too aggressive".

According to Jabbra (1989), hiring expatriate workers in Arabic

countries has caused grave difficulties, such as lack of continuity and consistency in care. Furthermore, expatriate workers, in many instances, complain that they do not fully understand their roles and responsibilities. In addition, the diversified background of expatriate employees has contributed to poor internal and external communication. Thus, the challenge for health managers is to overcome these potential barriers by integrating into the workplace the increasing number of professionals from diverse cultural backgrounds.

A converse view, however, such as that of Taylor (1991), is that the potential benefits of diversity in the workplace may include better decision making, higher creativity and innovation, greater success in marketing to expatriate and ethnic minority communities, and a better distribution of economic opportunity.

It is therefore the challenge of each hospital manager to create an organisational climate that values and makes full use of the differences of each employee working in the hospital.

5. Culture as a Disruptive Influence on Organisational Behaviour.

Many researchers have argued that culture influences organisational behaviour. Providing a conceptual framework, Hofstede (1980) suggests that differences in attitudes are the result of the different 'mental programs' that each individual carries, by which his or her behaviour is determined. These mental programs are a product of early childhood, reinforced in later life by

socialisation and life experience in a cultural group or society. Hofstede conducted a large-scale research study of IBM subsidiaries across the world in an attempt to understand work-related differences, and to account for these by reference to preferred management styles. Hofstede's empirical analysis resulted in a framework of four dimensions for differentiating national cultures. These are: power distance; uncertainty avoidance; individualism; and masculinity, each defined below.

- Power Distance is essentially used to categorise levels of inequity in organisations, which Hofstede claims will depend upon management style, willingness of subordinates to disagree with superiors, and the educational level and status according to particular rules.
- Uncertainty Avoidance refers to the extent to which members of a society feel threatened by unusual situations.
- Individualism describes the relatively individualistic or collectivist ethic evident in that particular society.
- Masculinity is the final category suggested by Hofstede. This refers to a continuum between "masculine" characteristics such as assertiveness and competitiveness, and "feminine" traits such as caring, a stress upon the quality of life, and concern for the environment.

These four dimensions correlated significantly with many other external measures collected by others, such as incidence of domestic political violence, the obligation for citizens to carry identity cards, and press freedom.

Hofstede's study has great value and significance for further research and for the development of organisational behaviour, yet it suffers from some limitations. As Hunt (1981) and others have pointed out, representativeness of the sample is questionable. Hence, the generalisability of the findings is questionable, in view of the sample having been drawn from a large multinational company such as IBM (which was the only company studied by Hofstede). IBM may tend to hire similar people worldwide, reducing national differences. In addition, the internal climate of the large multinational company may exert homogenising influences on the values of its members. Moreover, Hofstede has been accused of assuming that national cultures follow political boundaries, and the sample did not allow for within country differences (Jaeger, 1983). This issue is highlighted by the fact that a number of the countries included in his sample, such as the USA, Canada, and Belgium are multicultural.

Tucker et al (1990) indicated that attracting today's diverse workforce is a challenge. An important reason to plan for managing diversity is the realisation that by integrating diverse employees into an organisation, it is possible to develop staff to their fullest potential and maximise productivity.

In conclusion, the above discussion demonstrates that managing a

health care system with employees from many diversified and sometimes incompatible academic, social, cultural, and religious backgrounds raises serious administrative challenges as they pertain to worker conflict, differential skills and competencies, employee motivation across cultures, and adjustment to the host culture (Shah, 1986).

6. Attitudes in Diverse Organisations . Another aspect of individuals in organisations is their attitudes. Attitudes can be here defined as complexes of beliefs and feelings that people have about specific ideas, situations, or other people. Attitudes are important because they are the mechanism through which most people express their feelings. An employee's statement that he feels underpaid by the organisation reflects his attitude about his pay. Similarly, when a manager says that she likes the new advertising campaign, he/she is expressing his/her attitude about the organisation's marketing efforts.

Individual attitudes are formed in a variety of ways. The two dominant theoretical approaches to understanding attitude formation are the dispositional and situational approaches. Cognitive dissonance also affects attitudes. And once formed, attitudes may still be changed.

Attitudes have historically been viewed as stable dispositions to behave toward objects in certain ways (Kimble, 1988). For any number of reasons, a person might decide that he or she does not like a particular political figure or a certain restaurant. That person would then be expected to express consistently negative opinions of the candidate or restaurant and to

maintain the consistent and predictable intention of not voting for the political candidate or patronising the restaurant.

Cognition is the knowledge a person presumes to have about something. Cognition is based on perceptions of truth and reality, and, as we note later, perception agrees with reality to varying degrees. Affect refers to the individual's feeling toward something. In many ways, affect is similar to emotion: it is something over which we have little or no conscious control (Wharton et al., 1993).

An alternative to this dispositional view of attitudes has been presented by Gerald Salancik and Jeffery Pfeffer (Salancik et al., 1978). These scholars contend that research has not clearly demonstrated that attitudes are stable dispositions composed of precise components that are consistently reflected in individual responses. Instead, they argue attitudes evolve from socially constructed realities. This approach suggests that the social context delivers information that shapes the individual's attitudes. By means of cues and guides, social information provides a specific prescription for socially acceptable attitudes and behaviour. Such information focuses attention on specific attributes of the setting, thus making behaviour and attitudes that dominate in that setting more salient.

7. Managing Cultural Change. Changing the culture of health organisation is commonly claimed to be a fundamental prerequisite for improvement (Marshall et al., 2002:641). As Scott et al (2003:925) puts it:

“Reforms are based on the premise that a major cultural transformation of the organisation must be secured alongside structural and procedural change to deliver desired improvements in quality and performance”.

Some studies in different settings acknowledge that culture can be an important factor related to the effectiveness of different organisations (Cameron et al., 1991). Shortell et al (1995) demonstrate that health care cultures with united groups, teamwork, and coordination have been associated with successful quality improvement implementation. On the other hand, there is evidence that organisational culture with formal structures is negatively associated with quality improvement initiatives (Shortell et al., 2000). Many public and private organisations shape their culture to achieve organisational improvement (Deal et al., 1982).

In order to manage culture change, Scott et al (2003: 927) propose a framework that includes the following steps:

- In order to achieve reform or transformation, strategies for cultural change should be targeted at first or second order change.**
- To achieve cultural change, there are various models to help an organisation (to develop strategies for cultural change) and guide them through the process.**

- Organisations should be aware of all possible barriers (overcoming resistance) that prevent change. Scott et al. (2003:927) highlights the following barriers: “lack of ownership, complexity, and external influence, lack of appropriate leadership, cultural diversity, and dysfunctional consequences”.

3.2.13 Conclusion. An organisation is subject to many pressures for change from a variety of sources – far too many to cover them all within the scope of this study. Moreover, because the complexity of events and the rapidity of change are increasing, predicting what type of pressure for change will be most meaningful in the next decade is difficult. However, discussing the broader themes and pressures that will probably have a major effect on an organisation is nevertheless possible, and important.

Change may be forced on an organisation, or an organisation may change in response to its environment or an internal need. The forces for change influence organisations in many ways (AbdulHak et al., 1996). In current thinking, the areas in which the pressures for change seem most powerful involve organisational issues, and cultural issues.

Planned change involves anticipating change and preparing for it. Lewin describes organisational change in terms of unfreezing, change, and refreezing (Zand, 1974). In the continuous change process model, top management recognises forces that call for change, engages in a problem-solving process to design the change, and implements and evaluates the

change (Lorenzi et al., 2000).

According to Barnard (1938), an organisation is a system of consciously coordinated personal activities or forces, in which members contribute their efforts to achieve the organisational goals and objectives.

Organisational culture has become one of the most discussed subjects in the field of organisational change. Interest has not been restricted to academics, however: practicing managers also are interested in organisations culture, especially as it relates to performance.

Fleishman (1967) defined culture as the sum of man's knowledge, beliefs, art, morals, laws, customs, and other capabilities and habits acquired by man as a member of society. He added that the significance of understanding culture is based on the fact that culture is a man-made part of man's environment. Thus, cultural differences are common from country to country. Differences in values, perceptions, beliefs, moral standards, and customs are derived from the differences in cultures.

In many parts of the world, and in many organisations, diversity is increasing with regards to gender, culture, educational background, and nationality. Diversity and differences among workers can bring substantial potential benefits to an organisation. The benefits include better decision making, greater creativity, innovation, and more successful marketing, covering different types of customers and customers' needs. Cultural differences within a work team may also carry the possibility of higher

turnover, interpersonal conflict, and communication breakdowns. This challenges the up-to-date manager to be more creative and intuitive in dealing with cultural differences within a work team.

Cultural change is not easy or straightforward, especially when it is diverse. Beer (1980) assert that in order to achieve successful culture change, strategies should address employees' needs, fears and motivations at all levels. Davies et al (2000:118) adds:

“The organisational culture cannot be tackled in isolation from such issues as organisational structure, financial arrangements, lines of control and accountability, strategy formulation, or human resource management initiatives”.

Indeed, both traditional and quality management philosophies have focused on the importance of organisational culture in developing the employee's world view, ideology, and definition of self (Van Mannen et al., 1983; Schein, 1985).

As noted earlier, culture may be the source of many forces that can drive or restrain change especially when it is diverse. The first step to ensure successful implementation of any change initiative should involve strengthening the driving forces and weakening the restraining forces.

Changing an organisational culture is a long and difficult process. The process of changing an organisational culture starts with a need for change and moves through a transition period wherein efforts are made to adopt new values and beliefs (Lorenzi et al., 2000). In the long run, an organisation that

successfully changes its culture will find that the new values and beliefs are just as stable and influential as the old ones. Value systems tend to be self reinforcing. Once they are in place, changing them requires a huge amount of effort (Barney, 1986). Thus, if an organisation can change its culture from performance-reducing to performance-enhancing, the new values will likely remain in place for a long time.

Managing organisational culture requires attention to organisational diversity. To manage a diverse workforce effectively, it is necessary first to recognise and acknowledge that there are differences between employees. Managers no longer expect every employee to think and act in the same manner. Processes that hinder programs and promote negative behaviour from the majority group should be discouraged at all levels of management, especially at the executive level that influences policy (Chemers et al., 1993).

First and foremost, change can be successful if managers take a holistic view of the organisation and the change project. Because the organisation's subsystems are interdependent, a limited view can endanger the change effort. A holistic view encompasses the culture and dominant alliance as well as the people, tasks, structure, and information subsystems.

The support of the top management is essential in any change effort. As the organisation's probable dominant alliance, it is a powerful element of the social system, and its support is essential for addressing control and power problems.

Problems related to resistance, control, diversity, and power can be overcome by broad participation in planning the change. Giving employees a voice in designing the change strategies may give them a sense of power and control over their own destinies, which may help win their support during implementation.

Open communication is an important factor in managing resistance to change and overcoming information and control problems during transition. Employees typically recognise the uncertainties and ambiguities that arise during a transition and seek information on the change and their place in the new system. In the absence of information, the gap may be filled with inappropriate or false information, which may endanger the change process. Top management should always be sensitive to the effects of uncertainty on employees, especially in a period of change.

Employees who contribute to the change in any way need to be rewarded. From a behavioural perspective, individuals need to benefit in some way if they are willing to help change something that eliminates their old, comfortable way of doing the job.

The management of change in organisations requires a holistic view of the organisation, top management support, participation by those most affected, open communication, and rewarding those who contribute to the change effort.

The next section addresses the literature on IS implementation.

3.3 Section Two: Information Systems (IS)

3.3.1 Overview. “We are entering a period of change – a shift from the command and control organisation, to the information based organisation – the organisation of knowledge specialist... it is the management challenge of the future”

(Lorenzi et al., 2000:120)

Senn (1987) defines an Information System (IS) as “a set of people, data, and procedures that work together for the purpose of collecting, processing and disseminating information in an organisation”. It is worth noting here that, as Turban et al (1999) explained, many people use the term Information Technology (IT) as a synonym to Information Systems (IS). However, he defines IT as “the technological side of an information system. It includes the hardware, databases, software, networks, and other devices”. In the current study, IT is considered as the technological side of the IS and not as a synonym for it. Therefore, an IS may be considered to have at least two components: personnel – which includes training, personnel (i.e. different people developing and using the system), attitudes of personnel, policy, and regulations; and technology (IT) – which includes the hardware and software, telecommunications, and databases etc.

There are different Information Systems. Each differs according to the setting in which it is to be implemented. For example, for management purposes a Management Information System (MIS) may be used. The MIS is

defined as “an integrated system for providing information to support the planning, control, and operations of an organisation” (Senn, 1987).

3.3.2 Stages of the IS Implementation process. Since this study is about HIS implementation, it is essential to point out the stages of the implementation process, in order to gain a general overview of the system development life cycle, especially given the fact that in any organisation there are multiple integrated information systems that might be available at different stages of the system development life cycle (Wetherbe, 1988; Johns, 1996). For example, in a hospital, administrative applications which support patients’ registrations, admission and discharges, accounting, and human resources might be at their implementation stage, while other clinical applications that support diagnostic testing and nursing care might be at the design or operational stages.

Although the components and degree of levels of system development are differ among the authors, there is nevertheless a general agreement on the basic flow of the system steps, which retain a sequential flow or pattern from the first point of origin.

John (1996) discusses four perspectives on system life cycles. The first is the general system life cycle; systems have a developmental stage (birth); then they pass through a period of growth and maturity; and then a period of deterioration.

The second is the information system life cycle. Here the system may undergo different stages starting from system design (when requirement and needs are defined); the implementation stage (when development, testing, and installation take place); the operation/maintenance task; finally the obsolescence or deterioration of the system.

The third perspective is the information system life cycle of the organisation. In this perspective, John (1996) acknowledges the “level of variability” among different systems’ life cycles in various departments of the organisation. The variability of the system life cycles will in turn create a competition status for technical and financial resources. This stresses that IS professionals, including health information management, should consider prioritising the needs, and balance the allocation of resources.

The fourth approach, the information systems development life cycle, focuses on analysis design; implementation and evaluation of newly developed information systems, or already developed applications from the vendors market.

Based on the above review and focusing only on the implementation stage, IS literature has provided a clear distinction between normative, process, and factor approaches to IS implementation. The normative approach investigates the problems and difficulties during the implementation tasks: however, they lack a comprehensive description of the definitions of the problems, as well as the guidelines to manage implementation activities.

Factor studies examine users and situational variables that impact the success or failure of implementation. Process researchers, on the other hand, examine how these variables evolve and change over time (Ginzberg, 1978; Kown et al., 1987; Cooper et al., 1990).

Definitions of IS implementation have also taken different dimensions in different studies. Some authors look at the implementation when it is completed, at an early stage of system development. Some also consider implementation to be completed when change has occurred.

For example, Senn (1987) and Wetherbe (1988) look at implementation in the development approach, and define it as a process introduced through usage of the system, and not as a phase of system development. In other words, implementation starts in an early stage, and continues at every stage, in system development and equipment delivery, and possibly in the prototype stage.

Regardless of what models and strategies used in the implementation process, there are several stages that must be considered to ensure an effective outcome when implementing IS. Cooper et al (1990) view IS implementation as an active, dynamic, and constant process that incorporates certain behaviours during pre- and post-implementation stages.

In addition to this, a review of the IS implementation literature reveals various models of the implementation process (Kolb et al., 1970; Kown et al., 1987; Ash, 1995)

3.3.3 IS Evaluation Literature. Kraemer et al (1991) identifies IS evaluation as:

“A technique used by organisations to continuously identify and maintain the balance between IS costs and benefits”.

The main goal of evaluating the IS in any organisation is to know how well the IS meets its objective, especially when it reaches the final stages of development. IS evaluation provides the necessary feedback to assess the technology, information, and personnel incorporated in the IS. Consequently, evaluation from a technology perspective considers hardware, software, telecommunications, and databases, while evaluation from a personnel perspective focuses on training, personnel, attitudes of personnel, policy, and regulations (Kaplan, 1997a).

Thus, the subject under evaluation is rather complex, because it involves many variables, techniques, and methods (Shortliffe et al., 1990). This can make comparison of the results of IS evaluation studies difficult. Glandon et al (1994:180) comment that:

“Part of the difficulty in IS evaluation lies in these systems’ bewildering range of scope (size), functionality, and system configuration”.

The literature on IS evaluation began to emerge in the 1980s (Farbey et al., 1999). Several authors developed different techniques or frameworks for evaluating IS that would assess the organisation to manage common system implementation problems in a methodical way. Based on different theoretical

and methodological models, these frameworks involved many research questions, and evaluated different IS issues. However, no one method was a “best fit”, i.e., appropriate to every organisation (Shortliffe et al., 1990; Farbey et al., 1999), mainly because every IS project has its own characteristics that depend primarily on the nature of the project and the organisation’s structure.

As identified by Ives et al (1980) and Kraemer et al (1991), research in IS can involve various aspects such as: the environments of the organisation (external and internal), the environments of the system (operational, developmental, and procedural), the system management, the utilisation of the system, and organisational and/or social impact (Anderson et al., 1994).

Agreeing on the same principles but focusing more on users, Shortliffe et al (1990) incorporated three main general concepts for IS evaluation. These are: Usability (how users’ skills match the system task’s characteristics); Functional utility (how well the systems’ functions fit the operation’s needs); and User acceptability (the willingness of users to use the system).

Additionally, Farbey et al (1999) suggest five themes for evaluating information systems in practice: the first theme is based on the “Evaluation theory”, where the usage of any evaluation technique is based on the circumstances of the project; the objectives of the system; and the evaluation objectives themselves. This theme provides a general evaluation framework to

IS problems and was initially proposed by earlier authors such as House (1980) and Remeneyi et al (1997).

The second theme is based on the “Stakeholder theory”, which is more applicable to many IS projects. This theory emphasises the role contributed by different parties or “stakeholders” (users, management, system developers, vendors, and consultants) and their relationship throughout the project context. For example, Scott et al (2000) suggest that increasing interaction among stakeholders brings more benefit to the organisation, such as potential cost savings.

The third theme is the “Decision-making” evaluation. This theme sees that evaluating IS can serve many purposes; decision making is one of them since the decision-making process happens at every level in the project.

Fourthly, the “Project dynamics” theme focuses on evaluating the projects in the development and implementation stages, because the value of the project might fluctuate over time; in turn it is vulnerable to termination at any phase.

Finally, the “Management learning theme” emphasises the importance of learning the causes of project failure, so as to develop a strategic thinking, which looks at “strategy and benefits, rather than requirement and costs” (Farbey et al. 1999).

In addition to evaluating IS investment in the organisation, some authors investigate this subject in the perspective of the change of information

systems in the organisation, i.e. the organisational change model.

Organisational change, they suggest, creates some threat that varies in its intensity from loss of job due to downsizing or reduction in employees to simply the disturbance of the routine operations of the organisation (Pfeffer, 1982). Three main models of organisational change were identified that underscore the importance of process and users' communication and the change in the personal status in work. These are: Research, Development, and Diffusion (in which system designers develop an information system, which is thought to be useful and beneficial, and users either adopt it or resist it); Problem solving (where systems experts and clients work together to develop a system to solve a problem); and Social interaction (concentrating on the innovation change within social channels) (Kaplan, 1997a).

Appendix 1 summarises the results of the literature search conducted to locate other studies in which the quality of implementation of IS was assessed in business and industrial settings. For example: (Lucas, 1978; Ginzberg 1978; Ginzberg, 1981; Bailey et al., 1983; Cheney, 1984; Baroudi et al., 1988; Doll et al., 1988; Sarinen, 1996; Lu et al., 1997; Li, 1997; Downing, 1999; Southon et al., 1999; Jiang et al., 1999; Jiang et al., 2000; Payton, 2000; Basu et al., 2001).

By reviewing the table in Appendix 1, it can be seen that these studies were conducted in different geographical areas. Of the sixteen studies, twelve were carried out in the United States, and one each in Finland, Taiwan, and

Australia. It will also be noted that such studies were conducted in a wide variety of industries, including banking, insurance, retailing, and manufacturing. Sixteen of the studies were retrospective reviews of IS implementation.

In spite of the variation among the studies, they all agree on one thing: namely, that there are many factors that can contribute to the success or failure of IS implementation, yet system success is a “multi-dimensional” attribute that is not described by a single measure. In addition, researchers aim to identify factors most important in implementing IS. They agree that the system may succeed in some respects and fails in others.

When critically reviewing the studies from Appendix 2, it will be noted that eight studies used quantitative methods (questionnaires), two used qualitative methods (interviews), and one study used triangulated methods, i.e. interviews and questionnaires to collect data. Two of these studies may be limited by its small sample size (Ginzberg, 1981; Bailey et al., 1983).

Most studies either had samples that were randomly selected, or else included all subjects, which ensures representativeness of the population. There were four exceptions, in which not all subjects were included. These are: Sarinen (1996) which surveyed 272 IS managers' satisfaction with IS, Lu et al (1997) which surveyed MIS managers to identify organisational impact on IS implementation, Jiang et al (1999) which surveyed 500 IS project

managers, and Jiang et al (2000) which surveyed 98 IS managers in the Midwestern region of the US.

Data collection was conducted by the authors of the studies in more studies than those where data collection was conducted by independent researchers. In the former, data collection may be biased by the collector's knowledge of the study aim.

Three studies had low response rate (Lu et al., 1997; Jiang et al., 1999; Basu et al., 2001). The response rate to questionnaires is generally lower than with other forms of self-report, particularly if the questionnaires are mailed out. If the response rate is lower than 50%, the representativeness of the sample is seriously in question. The response rate for mailed questionnaires is usually small (25-30%), so the researcher is frequently unable to obtain a representative sample even with randomisation (Burns et al., 1997).

Despite the studies being carried out in a variety of settings and by different users of IS, the results were similar. This observation suggest that these measures, i.e. organisational and personnel issues or user satisfaction, are the ones that researchers consider to be the most important issues for system success.

As detailed in Appendix 2, five studies evaluated organisational impact on IS implementation success. These are: Lu et al (1997); Southon et al (1999); Jiang et al (2000); Payton (2000); and Basu et al (2001). On the other hand, six studies used user satisfaction to evaluate IS implementation

success. These are: Baroudi et al (1988); Doll et al (1988); Sarinen (1996); Li (1997); Downing (1999) and Jiang et al (1999).

The following sections will discuss studies that evaluated organisational impact and user satisfaction. It worth noting that the factors identified in these studies were used in the methodology of this thesis, i.e. focus group, interviews and questionnaires (Chapter Four).

3.3.4: Theme One

The First Driver for Change in IS literature: Organisational Issues.

“It could be argued that ‘organisational design’ rather than ‘organisational fit’ will be a key consideration of the IS/IT strategy”

(Lorenzi et al., 2000:121)

Much of the literature review on the effect of IS suggests that IS by itself does not create change, but the method of its implementation and use determine the impact that will occur. It is obvious that in the implementation stage the resources are expected to affect the system, and the assessment to which the system is actually delivered, used, and acceptance is carried out.

It is also clear that the success or failure of this stage has a significant impact on the diffusion of the system in the organisation (DeLone et al., 1992; Southon et al, 1999; Lai et al., 1997).

Many factors can contribute to the success or failure of the IS implementation, yet system success is a “multi-dimensional” attribute that is

not described by a single measure (Ginzberg, 1981; Delone et al., 1992; Tan, 1992; Sarinen, 1996; Lorenzi et al., 2000). In other words, the system may succeed in some aspects and fail in others. Researchers proposed different variables for implementation success factors, such as system use and user satisfaction (Ginzberg, 1981).

Nolan et al (1980) presented a research model which viewed MIS as an open system which transforms data, requests for information, and organisational resources into information within the context of an organisation. Similarly, Ives et al (1980) classified existing IS research and generated illustrative hypotheses using a research model which described the interactions between three classes of variables: the environment, the process, and the IS. These researchers, amongst others (Bennett, 1976; Cheney, 1984; Edstrom, 1977b; Gallagher, 1974; Gingras et al., 1982; Heany, 1972), recognise the importance of organisational characteristics as a potential influence on IS success.

Alavi et al (1981) reviewed thirty-three empirical studies conducted between 1975-1988 that focused on the relationship between user factors and the decision support systems (DSS). They identified four sets of user-related factors that influence DSS implementation success: cognitive style, personality, demographics, and user-situational variables. These factors were also influenced by a number of variables such as: decision-making tasks (complexity of the task), organisational factors (top management support), and

external factors. The results concluded that although user factors do impact DSS implementation, the success rate can be improved by 20 to 30 percent through the manipulation of user-situational variables, and by 10-15 percent through consideration of psychological factors.

IS researchers generally agreed on the five attributes stated by Rogers. Moore et al (1991) focuses on Rogers's work. Moore modified Rogers's definitions of attributes in order to test perceptions of using innovations. Moore's work included the development of an instrument to measure the perception of adopting an IS innovation. This showed that the higher the innovation's score on each of the characteristics, the more successful the implementation was likely to be (Moore et al., 1991). The instrument was tested several times to "reflect accepted level of validity and reliability and to be used by researchers as a tool for the study of the initial adoption and eventual diffusion of IS innovations within organisations" (Moore et al., 1991). The instrument, which was comprised of eight scales with 38 items, was developed to be used for the study of initial adoption and diffusion of innovations (Moore et al., 1991).

Many studies focused on innovation attributes and their effects on diffusion rate. Other studies discussed organisational issues relating to innovation. Management's role in the implementation of innovation is very important if implementation is to be successful. Leonard-Barton et al (1985) focused their work on management issues of implementation of innovations.

These researchers identified several key challenges that managers have to cope with during the implementation of new technology. Examples of challenges included resistance to change, users' involvement in the design phase, information flows within organisations, and involvement of key personnel during the implementation phase such as sponsors, champions, project managers, and integrators. Throughout the study, researchers stressed the importance of user involvement at implementation phase to make it a successful experience.

McGowan et al (1998) conducted a study investigating innovation attributes, organisational, and environmental characteristics regarding the adoption of Electronic Data Interchange (EDI) by organisations. Innovation attributes included relative advantage, compatibility, and complexity, which were previously identified by Rogers (1983). Organisational characteristics included size, management support, champions, technical expertise, training, and centralisation. The study used qualitative methods including interviewing subjects from four different companies with EDI activities, who held primary responsibility for EDI activity. The main findings showed that environmental factors had a significant effect on the adoption decision, and industry cooperation also played significant role in the acquisition of knowledge regarding EDI.

Southon et al (1999) states that "there is an increasing awareness that there is a wide range of complex organisational and people-related factors to

be taken into consideration". The factors pointed out in this study include organisational change, politics, leadership, training, resistance, commitment, and communication.

The definition of organisational structure has been viewed in many ways. Some authors (Phgh et al., 1969) have described the internal characteristics of an organisation as centralisation. An organisation might be centralised with one authority point at the top, or it could be decentralised where the authority is spread throughout a number of personnel within the organisations.

The results of Alavi et al (1981) are consistent with other researchers such as Kolb et al (1970), and Ginzburgh (1978). They all emphasise the importance of user involvement, training, and experience as factors influencing the success of IS implementation.

Payton (2000) gathered data from thirty health care professionals to explore factors that affect implementation in community health information networks (CHINs). She studied the push/pull factors during the initial stage of the implementations (economics, government, competition); as well as behavioural factors (top management, vendors, patient, end user, and physician support). Results indicate that factors such as competition, economic dimensions, political issues, organisational readiness, and system planning were primary deterrents of system success.

Jiang et al (2000) investigates the link between resistance reasons and system types, and assesses managerial perceptions of the relative importance of various strategies for promoting acceptance in the context of these types. The study surveyed 66 managers in a variety of organisations in the US. Results indicate that resistance to change is a key factor to which many IS implementation difficulties have been attributed. In addition, they indicate that there are significant differences in the reasons users resist change. Those reasons include: change in the job content, uncertainty, loss of status, job security, and loss of power. This study suggests a greater attention to issues relating to power, social status, and job security.

3.3.5: Theme Two

The Second Driver for Change: User Satisfaction . As indicated previously, the key to successful implementation is the successful management of change. Users resist change especially if they are uncertain of benefits (Southon et al., 1999). User satisfaction is defined by Krobock (1984:230) as:

“The sum of feelings or effective responses to distinguishable factors of computer-based information products and services provided within the organisation”.

He also adds that user satisfaction is an indicator of the effectiveness of an organisation's data-processing activities. Ives et al (1984) define it as: “The

extent to which end-users believe in the IS available to them and meets their information requirements”.

Most researchers, whether in empirical studies or conceptual articles, used the term acceptance in the same way, i.e., meaning satisfaction, such as Davis (1989) and Burkes (1991). Anderson et al (1994) reported that end user satisfaction is usually treated as a perceived measure of a system quality, and as an indicator of system acceptance.

Ives et al (1983:785) recognised user satisfaction as a measure of system success. They defined user satisfaction as:

“The extent to which users believe the information system available to them meets their information requirements”.

Several IS researchers have suggested user satisfaction as a success measure for their empirical IS research (Ein-Dor et al., 1978; Hamilton et al., 1981). These researchers have found user satisfaction especially appropriate when a specific information system was involved. Once again, a key issue is whose satisfaction should be measured. In attempting to determine the success of the overall MIS effort, McKinsey & Company (1968) measured chief executives' satisfaction.

In two empirical studies on implementation success, Ginzberg (1981, a) chose user satisfaction as his dependant variable. In one of those studies (1981, a), he adopted both use and user satisfaction measures. In a study by Lucas (1978), sales representatives rated their satisfaction with a new

computer system. Later, in a different study, executives were asked in a laboratory setting to rate their enjoyment and satisfaction with an IS which aided decisions relating to an inventory ordering problem.

In the Powers (1973) study on MIS project success, managers were asked how well their information needs were being satisfied. Similarly, in a study by King et al (1983), IS value was imputed based on managers' satisfaction ratings. User satisfaction is also recommended as an appropriate success measure in experimental IS research (Sirkka et al., 1985) and for researching the effectiveness of decision support systems (DeSanctis, 1982). Other researchers developed multi-attribute satisfaction measures rather than relying on a single overall satisfaction rating. Swanson (1974) used 16 items to measure IS appreciation, items which related to the characteristics of reports, and of the underlying IS itself. Bailey et al (1983) developed a 39 item instrument for measuring users' satisfaction. Their study was the basis of many studies conducted later (Benbasat et al., 1980; Ives et al., 1983; Raymond, 1985; Mohamood et al., 1986; Baroudi et al., 1988; Montazemi, 1988; Livari et al., 1989; Joshi, 1990; Tan et al., 1990). Bailey et al (1983) asked users in eight different US organisations to evaluate the importance level of the 39 factors (Table 3.7). An earlier version of Bailey et al (1983) was reviewed and evaluated by Kriebel (1979) and by Ives et al (1983). Raymond (1985) used a subset of 13 items from Bailey et al (1983) in a questionnaire to measure manager satisfaction with MIS in small

manufacturing firms. Sanders (1985) also developed a questionnaire and used it to measure decision support system success. Sanders' overall success measure involves a number of measures of user and decision-making satisfaction.

As DeLone et al (1992:68) summarise:

“When the use of an information system is required, the preceding measure becomes less useful, and successful interaction by management with the information system can be measured in terms of user satisfaction”.

Doll et al (1988a) also determined that system use has been considered as a dependant variable for system success. But they argued that in a post-implementation context, less time use is more desirable, as the focus of system effectiveness and improvement is on reducing cost and improving efficiency with less time utilisation. They also added that evaluating system use is a “socio-technical” function defined by the interaction between people and technology in the organisation's environments.

On the other hand, Montazemi (1988) surveyed 86 end users and 67 IS specialists in 83 small Canadian firms to rate the importance level of 35 Bailey et al (1983) factors: The five most important factors for the users were: (1) accuracy of output, (2) top management involvement, (3) users' confidence of the system, (4) timeliness of output and (5) the reliability of output. In contrast, the five most important for the IS staff were: (1) top management involvement, (2) users' confidence in the systems, (3) accuracy

of output, (4) timeliness of output, and (5) documentation of systems and procedures.

In 1992, Delone et al reviewed 180 empirical studies that also focused on issues that play a role in the success of information systems based on Bailey and Pearson factors. They identified that a successful IS model depends on the influence of several dimensions. These are:

1. **System quality:** the measures of the system itself. These include variables such as: data accuracy, system accuracy, ease of use, response time, and usefulness of system.
2. **Information quality:** the measures of the system outcome. These include variables such as: format, content, timeliness and accuracy.
3. **User satisfaction:** users' interaction with the system, e.g., software satisfaction, decision-making, and differences between information needed and received.
4. **Organisational impact:** the effect of the system on the organisation's performance.

The only weakness of Bailey et al (1983) study, as Li (1997) points out, is that they overlooked the "organisational impact" dimension. Li, on the other hand, identifies additional factors that encompass both the human and

system aspect of IS success. Li's study reveals the five most important factors were:

(1) Top management involvement, (2) Users' confidence in the systems, (3) Accuracy of output, (4) Timeliness of output, and (5) Confidentiality of procedures.

Moreover, they concluded that although this comprehensive model provides IS success categories, there is no one single success measure. Researchers should consider different independent variables of the system under study, such as: organisational structure, size, culture, and the technology being adapted. Although this model focuses on information system success, it overlooks the human aspects of the system success (Li, 1997).

System use is another measure for system success that has been studied by several researchers. For example, Ginzberg (1978) gathered data from management and IS users in thirty projects to test implementation processes and determine any problematic issues. He discussed three levels of system use: management action, use created change, and recurring use of the systems. He concluded that successful projects differ in the extents of their implementation process, and commitment to change. Effective systems require the commitment of top management and users.

User satisfaction is probably the single most widely used measure of IS success. The reasons for this are at least threefold. First, "satisfaction" has a high degree of face validity. Second, the development of the Bailey et al

(1983) instrument and its derivatives has provided a reliable tool for measuring satisfaction and for making comparisons between studies. The third reason for the appeal of satisfaction as a success measure is that most of the other measures are so poor; they are either conceptually weak or empirically difficult to obtain.

3.3.6 Summary. In summary of the above review, organisations are complex functional departments, and the type of organisation structure and culture may have an impact during the system implementation process (Lorenzi et al., 1997). Uncertainty is an important factor that influences organisation activities (Lucas, 1973). This exists as technical uncertainty, when the organisation does not know whether the system will work or be accepted by users; or as market uncertainty, when the organisation is unfamiliar – has no experience – with the new system that is implemented: finally, uncertainty may exist when key personnel leave or the project is terminated. Yet in introducing a new technology, there is a process of organisational learning to go through, with many stages and many variables to consider before the implementation process is completed and successful.

IS implementation is defined as “an organisational effort directed toward diffusing appropriate information technology within the user community” (Randolph et al., 1990). Efficient and valuable IS will only be attainable if good technical and organisational skills exist within the establishment with knowledge of the existing environment – both internal and

external. Also, an in-depth systematic approach to implementation is vital to implementation success. It involves people, organisations, technology, policy, and processes (Lorenzi et al., 1997). The implementation function is a multi-dimensional, ongoing process that entails top management involvement in various facets such as: preparing for the system implementation, testing, training, maintenance and so on. Moreover, overall factors create “pushing” or “pulling” influencing factors for a successful implementation. (Linstone, 1999; Wetherbe, 1988).

Indeed, many factors could affect the implementation of IS. But whether the need is to adopt a new single system, or to integrate multiple systems, or even to modify other available applications, the importance of team cooperation, top management support, user involvement, training and many more remain key factors for a successful implementation.

Many researchers have attempted to identify factors that make an IS successful. This is difficult, because IS implementation is a multidimensional process. As Delone et al (1992) states, “the success of IS implementation is a multidimensional trait; it can not properly be described by a single measure”.

Based on the literature reviewed on IS implementation, it can be concluded that there are two themes associated with this process. Those are, namely, the organisational impact; and user satisfaction. Under each of the two themes, there are a number of different factors that are believed to affect the success of the IS implementation process. The study will now go on to

discuss the more specific subject of HIS implementation, as it has been addressed in literature.

Table 3.7: Dimensions and Factors of Information System Success Covered by Bailey and Pearson

System quality	Information quality	Information use	User satisfaction	Individual impact	Service quality	Conflict resolution
Response time	Accuracy of output	Volume of output	Top management involvement	User's expectation	Technical competence	Competition
Convenience of access	Timeliness of output		Chargeback method of payment	Job effect of the system	Attitude of the staff	Allocation priorities
Features of language	Precision of output		User's confidence in the system	Perceived utility	Scheduling of system products	Relationship between users and the IS staff
Realisation of user requirement	Reliability of output		User's participation		Time required for system development	Communication
Correction of errors	Currency of output				Processing of requests for system changes	Personal control over the system
Security of data	Completeness of output				Vendor's maintenance support	Organisational position IS unit
Documentation	Format of output				Means of output/input	
Flexibility of the systems					User's understanding of the system	
Integration of the systems					Training provided to users	

3.4 Section Three: Health Information Systems (HIS)

3.4.1 Overview. The past two decades have given rise to increasingly more sophisticated methods for designing, developing, and implementing HIS, yet few health care organisations are able to make use of this fully (Orlikowski, 1996:64). There is much evidence in the literature that implementing HIS in health organisation may be greeted with scepticism and uncertainty, especially as regards their integration into the workplace. Many systems remain unused, and even those diffused into their environment are usually not fully exploited. Several studies have focused upon randomised control trials for evaluation purposes, but other researchers have stated that this is not the best method of understanding the organisational issues involved, or to measure user perceptions of HIS implementation (Kaplan, 1997a; Kaplan, 1997b). It has also been noted that human issues are a neglected aspect of HIS implementation. Few studies cover these issues (Orlikowski, 1996; Berg et al, 1999; Kaplan, 1997a; Kaplan, 1997b).

Berg (2001:143) observes that the implementation of IS in health care organisations is a process of mutual transformation; the organisation and the technology transform each other during the implementation process. The process of implementation can only be achieved when it is supported by the top management and future users. A framework for implementation is important to turn users input into a 'steering force' for organisational transformation. He adds that:

“The management of IS implementation processes is a careful balancing act between initiating organisational change, and drawing upon IS as a change agent, without attempting to pre-specify and control this process. Accepting, and even drawing upon, this inevitable uncertainty might be the hardest lesson to learn”.

3.4.2 Evaluating IS in Health Care Organisations . The literature on evaluating IS in industry and commerce has a much longer history than that in the medical field (Austin, 1992; Anderson et al., 1994). In 1990, a survey conducted by the Hewlett-Packard Corporation and the Healthcare Information and Management Systems Society (HIMSS) revealed that 40% of the respondents indicated that hospitals are “significantly behind” other business in IS technology automation (Austin, 1992).

The main objective of IS in the field of health care is to design information resources and systems that enable the health care organisation to accomplish its visions in the most effective way. Basically, IS is a crucial resource for healthcare organisation management. IS is an essential source to improve the quality of patient care services, to enhance daily administrative operations, and to support strategic decision-making.

Therefore, there are many reasons for promoting IS evaluation in the health care field. IS evaluation is a means to reassure the users and management that the system is safe, beneficial, and cost effective. It is an approach to assess how well the organisation’s resources adopt to the change.

Evaluating IS justifies the expenditure of adopting appropriate IS, which is usually costly and in a state of continuous, swift change.

Previously, HIS were basically evaluated according to technical or economic factors using traditional, 'state of the art' methods of evaluation such as cost-benefit analysis (CBA) or cost effectiveness analysis (CEA).

But despite the importance of these techniques, a review done by Glandon et al (1995) identified certain barriers as 'shortcomings' in conducting a comprehensive evaluation of hospital information systems. As Ida Hoos commented:

"In our technological era, the prominent paradigm is so technically oriented that most of our problems are assigned the same treatment..."

Glandon et al (1995) revealed three reasons for spending large amounts of money on the hospital information systems without using CBA or CEA prior to implementation. Firstly, implementation of information technology was carried out for the sake of acquiring the technology, regardless of the cost consequences. Secondly, it was difficult for many administrators to justify the cost associated with hiring highly qualified consultants to perform the evaluation task. Finally, the reasons for cost analysis would become irrelevant after the system was implemented.

As health care policies increasingly demand improving the quality of patient care and reducing costs, the need for evaluating HIS has increased,

taking into consideration new models of evaluation, including organisational issues. For example, new trends in IS evaluation in the health care field promote recognition of the social, organisational and political factors, and other non-political factors in what is called by Kaplan (1997a), Lorenzi et al (1997) and others the “social interactionist” model. This trend studies the relationship between information system features, user personality, organisational characteristics, and the effects among them.

Drawing from the ‘social interactionist’ model, Anderson et al (1994) have provided a framework to guide evaluating information systems in the health care. They looked at the information system as an external force, where the technical features of the system as an external force impact the organisation. According to this model, and the Research, Development, and Diffusion model discussed earlier, users who don’t utilise the information systems are viewed as passive, resistant, or dysfunctional. Yet these evaluation studies failed, because they treated the organisational and technological characteristics as invariant rather than as changing over time. (Kaplan, 1997a). They believed that the information system is acquired to meet organisational and users’ needs. The organisation’s members have more control over the system selected, based on the technical features. They also added that the social interactionists as determinants of the system use (Anderson et al., 1994). The IS evaluation involves organisational, social, and political processes which emerge over time, and the system’s impacts are

thought to be affected by communication between the members in the organisation.

Several authors in the medical informatics field, including Kaplan (1997b), analyse the so-called “lag” in medical computing. Kaplan (1997b) suggested three causes for this: insufficient technology, funding, or knowledge; barriers inherent in medicine itself; and resistance amongst physicians.

Kaplan (1997b) adds that the way technology is designed, implemented, and used in a particular organisational setting depends on individuals’ and group objectives, preferences, and work demands (Kaplan, 1997b). She recognises the ‘4 Cs’ of evaluation as: communication, care, control, and context (Kaplan, 1997b) – these are the key elements in the evaluation process of any HIS.

In sum, the quality of IS technological innovation is determined in terms of its accuracy, timeliness, content, format, and transformation. This literature review revealed a range of different methods for evaluating IS, yet most lack a unified approach for continuous evaluation. The process of evaluating can be enhanced, therefore, by a periodic evaluation of all stages of the system development life cycle, using multiple approaches, and considering the organisational and personnel aspects of the environment.

3.4.3 Health Care Organisations and IT adoption. A large body of research addresses the organisational impact on IT implementation (Lucas,

1973; Ginzberg, 1978; Linstone, 1981; Pfeffer, 1982; Senn, 1987; Wetherbe, 1988; Cooper et al., 1990; Burch, 1992; Lorenzi et al., 1997; Kaplan, 1988; Ash, 1997a; Beynon-Davis, 1998; Turban et al., 1999). The findings suggest that the structure and environment of an organisation are essential predictors of the organisation's behaviour. These authors also agree that due to the differences in organisational structures and organisational needs, usage and adoption of information systems will also be different. Furthermore, the type of organisational structure will influence the implementation of information systems in an organisation.

However, there are many ways of looking at organisational types or structures. For example, some authors (Phgh et al., 1969) looked at the internal characteristics of the organisation as based on several dimensions: formalisation, specialisation, centralisation, and configuration.

Here, formalisation is defined as the amount of written documentation – such as job descriptions, procedures, and policies – in the organisation, i.e. the organisation is measured by the amount of documentation it owns.

Specialisation refers to the organisation's subdivision of tasks. For example, in a large hospital there are various departments that provide health and clinical services to patients, and each performs its tasks with high specialisation.

Centralisation refers to the levels of authority that make decisions. An organisation might be centralised, with one authority spread throughout a number of personnel within the organisation.

The set-up in a large hospital can be almost uniquely complex:

“A large hospital system may have a federal structure, with management having largely a machine bureaucracy form, yet its autonomous medical staff could give it a substantial professional bureaucracy nature. However, some section may be run by a strong autocrat, similar to the primitive form” (Lorenzi et al., 1997:7).

This statement explains some of the complexity in the structure of health care organisations. The health services are composed of many components, such as community hospitals, small clinics, and individual professionals, which form a complex integrated network that is undergoing central changes all the time. Besides, many dominant organisations, such as non-profit, public, or volunteer-based organisations, will pay more consideration to humanitarian values and objectives than to financial or commercial goals as their tasks are purely dedicated to preserving life and health.

In addition to the impact of organisational types and structure on IS implementation, Turban et al (1999) suggest that

“To understand the role of information technology in today’s organisation, it is useful to review the major business environmental factors that create pressures on organisations”. (House, 1980:7)

In addition to these business pressures, government policies, budget regulations, organisational culture, and organisational social problems, like employees’ behaviour, training, and ethics, have created pressure on many organisations.

Organisations are likely to resist change through the behaviour of their staff (Ash, 1997b; Kaplan. 1997a; Downing, 1999). Hospital organisations are no exception. The introduction of innovations to create change to the health care organisations must often deal with a slow acceptance of the new technology, non-use, or sabotage of the system (Lucas, 1975; Ash, 1997a; Lorenzi et al., 2000).

Appendix 3 summarises the result of the literature search conducted to locate other studies in which the quality of implementation of IS was assessed in health care setting. Many studies were found in which different models of HIS were evaluated. For example, Counte et al (1983) evaluated Medical Information Systems (MIS), Kjerulff et al (1988) evaluated Medical Information Systems (MIS), Kaplan et al evaluated (1988) Laboratory Information Systems (LIS), Zviran (1992) evaluated Computer-Based Information Systems (CBIS), Weir et al (1994) evaluated Integrated Order Entry Systems (IOES), Brodник et al (1994) evaluated Computerised Patient

Records, Chae et al (1994) evaluated Health Management Information Systems (HMIS), Ash (1995) evaluated Computerised Patient Records, Ash (1997) evaluated Computerised Patient Records, Wager et al (2000) evaluated Electronic Medical Records (EMR), Wilson et al (2000) evaluated Computerised Practitioner Order-Entry Systems (POE), Weir et al (2000) evaluated Computer-Based Patient Records (CPR), Ash et al (2003) evaluated Computerised Physician Order Entry (POE), Doolan et al (2003) evaluated Computer-Based Patient Records (CPR), and Ash et al (2004) evaluated Computerised Physician Order Entry (POE). All of these different studies of different kinds of systems evaluate the quality of IS implementation in hospital setting.

By reviewing Appendix 3 it will be noted that these studies were done in different geographical areas. Of the 19 studies, 17 were conducted in the United States and one each in the United Kingdom and Korea. 18 studies were retrospective reviews of HIS implementation, and only three were prospective (Kaplan et al., 1988; Kjerulff et al., 1988 and Chea et al., 1994). 16 studies were done in non-profit organisations, and only three were not (Kimberly et al., 1981; Kaplan et al., 1988 and Brodnik et al., 1994).

From critically reviewing the studies in Appendix 4, it can be seen that 14 studies used quantitative methods (questionnaires), four used qualitative methods (interviews), and one used triangulated methods, i.e. interviews and questionnaires to collect data.

Two studies may be limited by their small sample size (Counte et al., 1983; Kjerulff et al., 1988); however, all subjects were included.

Most studies had samples that were either randomly selected, or included all subjects, which ensures representativeness of the population.

There were three exceptions to this: Chea et al. (1994) surveyed visitors' satisfaction with the HIS, Ash (1997a) surveyed informatics experts to identify factors most important in implementing Computer-Based Patient Records, and Doolan et al (2003) interviewed and surveyed physicians.

Data collection was more commonly conducted by the authors of the studies than by independent researchers. In the former, data collection may be biased by the collector's knowledge of the study aim.

Four studies had a low response rate (Counte et al., 1983; Kaplan et al., 1988; Bailey 1990; Brodnik et al., 1994).

In general, based on the studies conducted specifically to evaluate HIS implementation, the researchers focused on certain factors, the lack of which constitutes the failure of HIS implementation.

There are a number of methodologies that can be used for the evaluation of HIS in terms of measuring its effectiveness in health care organisations (Anderson et al., 1994): (1) Satisfaction of patients or visitors to the health care centre, (2) adaptation of the system and (3) End user satisfaction.

Firstly, satisfaction of patients or visitors to the health care centre is a method used for evaluating the success of implementing HIS, which shows whether a HIS has positive effects on visitor satisfaction. For example, Chae et al (1994) conducted a study measuring the level of satisfaction, perceived by the visitors, before and after the implementation of a HIS in one health centre in Korea. The results showed that the system reduced patient waiting times at the health centre, simplified the administrative process, and enabled the staff to spend more contact time with their visitors. Patients were satisfied with the system (Chea et al., 1994).

Secondly, adaptation of the system is a method that demonstrates the general process of organisational and personnel adaptation to the HIS implementation process. Counte et al (1983) defined user adaptation to a new system as the way an individual learns to use a new technology initially and to work with it over time. Such adaptation can also be found as a negative impact, representing resistance at individual or organisational level.

Finally, end user satisfaction evaluation in health care requires not only an understanding of computer technology but also an understanding of the social and behavioural processes that affect and are affected by the implementation of technology into health care organisations (Anderson et al., 1994).

From Appendix 4, and based on the preceding discussion, it appears that the most common measurement used to evaluate HIS implementation in terms of the number of studies conducted were organisational and user satisfaction.

Despite the studies having been carried out in a variety of settings, and on different users of HIS, the results were similar. This suggests that these issues, i.e. cultural, organisational, and user satisfaction issues, are the most important issues for system success. The following studies measured organisational issues: (Kimberly et al., 1981; Counte et al., 1983; Kaplan et al., 1988; Brodnik et al., 1994; Weir et al., 1994; Ash, 1995; Ash 1997a; Wager et al., 2000; Ash et al., 2003; Doolan et al., 2003). User satisfaction was measured in the following studies (Bailey, 1990; Zviran, 1992; Young et al., 1993; Chea et al., 1994; Weir et al., 2000; Wilson et al., 2000)

Organisational issues and user satisfaction will now be discussed in the following sections.

3.4.4 Theme One

The First Driver for Change in HIS literature: Organisational

Issues. Kimberly et al (1981) studied the influence of individual, organisational, and contextual factors on hospital adoption of technical and administrative innovations. Regarding the organisational factors, they reported that while there was no theoretical evidence relating the centralisation structure of an organisation with IT adoption, the relationship might depend on the type of innovation and its relation to the decision makers. In other words, adoption of core technology in a professional environment such as physicians working in a hospital, who are more autonomous, tends to be applied more in a decentralised structure.

On the other hand, implementing an administrative system tends to be more applicable in a centralised structure, where the chief executive's requests carry more weight.

Kimberly et al (1981) also suggested that a hospital's activities facilitate hospital adoption of information systems. Size and specialisation are good predictors for adoption of medical innovations, i.e. adoption of new innovations is less likely to happen in older hospitals, because they have already achieved a security status and a certain position in the environment (Hage et al., 1967; Mytinger, 1968; Aiken et al., 1971; Corwin, 1972). In addition, Kimberly et al (1981)

acknowledged the importance of the organisation's environmental context for innovation, i.e. competition. This variable was included because it is generally held by economists that "competition increases the likelihood of adoption of innovation" (Utterback, 1974:40).

Brodnik et al (1994:55) investigated the barriers to computer-based patient record implementation. A three-part survey instrument was developed. The first part consisted of 18 barriers derived from the Institute of Medicine (IOM) in addition to the literature. The barriers were grouped into technological, organisational, and personnel. The second part of the instrument asked the subjects to select at least one, but not more than three strategies that might be used to overcome the barriers within their organisation. They reported that organisational barriers were the most critical and most difficult barriers to overcome. The technological barriers followed in importance and length of time to overcome. The findings of Brodnik et al support the IOM committee's assumption that organisational and personnel barriers are bigger issues than technological barriers. Insufficient funding was the most critical barrier identified in the study. On the other hand, the strategy for overcoming at least 14 of the 18 barriers was training. Respondents have identified training as a key component for successful IS implementation (Calhoun et al., 1989). In addition, top management support was

identified as the second most needed strategy to overcome computer-based patient record implementation barriers.

Ash (1997b:682) studied the organisational factors that influence the diffusion of three main innovations in US academic health centres. Ash came to the conclusion that certain organisational factors act as predictors for diffusion of information technology innovations. The study surveyed 1335 randomly selected individuals at 67 health centres. She concluded that certain organisational variables such as communication, participative decision-making, top management support, planning, and existence of a championship and reward system are essential predictors for diffusion of IT innovations, yet these individual variables vary in their effect on each innovation.

Another study by Ash (1997a:102) was related to diffusion of the computer based patient record at institutions with accredited schools of medicine in the US. This study was an attempt to consider organisational attributes when studying diffusion of innovation in IS. Questionnaires from 629 informatics experts representing 67 institutions with accredited schools of medicine were analysed to measure the effects of three independent variables: innovation attributes, organisational attributes, and boundary-spanning attributes (management of boundaries between sellers and buyers of an innovation). Results showed that the organisational attributes of decision-making and planning had a

significant impact on diffusion, although the relationship between planning and diffusion was negative. Ash concluded that successful marketing of the computer based patient record system results in more attention and resources devoted to managing the organisational aspects of implementation.

Lorenzi et al (1997:90) highlights organisational and personnel issues. She asserts that organisational and personnel issues are critical in both implementing medical informatics systems and in dealing with the transformed organisations that new systems often create (change). She concluded that change required for achieving the desired outcome goals are particularly demanding and complicated in complex organisations like hospitals that operate on a 7-day 24-hour basis.

Amataykul (1999:13) discusses a set of factors affecting the successful implementation of Electronic Medical Records (EMR) in the US. She indicates that one of the most common barriers is a lack of top management support. From her point of view, top management needs to give long-term commitment and support to successfully implement an EMR system. She addressed the importance of involving users early in the system adoption process. Users' involvement will decrease the amount of resistance to change by users.

Berg (2001) illustrates that organisational issues account for many of these difficulties, and that the social sciences have an important

contribution to make (Lorenzi et al., 1997; Berg, 1999). In addition, organisational issues are key because technical difficulties can be the result of poorly managed development processes.

Ash et al (2003) describes the perceptions of a variety of professionals involved in computerised physician order entry (POE) at sites where the POE has been successfully implemented. Observation, interviews, and focus groups were used: in her view, each method has its unique strengths. Four major themes emerged from the data; (1) Organisational issues, including collaboration, organisational and personal pride, organisational culture, power, politics, and control; (2) Clinical/professional issues; (3) Technical/IT implementation issues, and (4) Issues related to the organisation of information. Ash concludes that an organisational culture characterised by open and trusting communication between administrators and clinicians is necessary. She adds that power and control issues will not disappear, but they can be managed. Collaboration and two way communication are important and need to be part of the organisation structure. She adds that POE implementation is an iterative process that takes time. The necessary change process is not easy, but once POE is accepted, users become dependent on it.

The literature review will now go on to discuss specific organisational issues that have been addressed in the scholarly research

in this field. The following factors: management support, quality of planning, champion, quality of communication, end users involvement, organisational resistance to change, individual resistance to change and incentives were discussed in Section One. Formation of implementation team, Competition and resource allocation will be discussed in the following part.

1. Formation of Implementation Team. In his justification of the “learning organisation” Senge (1990) argues that “team learning” is vital because teams, not individuals, are the fundamental learning unit in modern organisation.

In one of the most influential studies of worker behaviour in industrial organisations, the Hawthorne studies¹⁵ (1927-1932), the importance of group processes at the workplace is a central theme. These studies identify and characterise the social dynamics of the informal organisation with the work group as the basic unit of structure. Indeed, much of the current work on group efficacy¹⁶ is based on the Hawthorne plant (General Electric) studies. The research done in conjunction with these studies demonstrates that groups often re-create a sub-organisation

¹⁵ Carey, A. (1967). “The Hawthorne Studies: A Radical Criticism” American Sociological Review June: 403-416; and Yorks, L. and Whitsett, D. (1985). “Hawthorne, Topeka, and the Issue of Science versus Advocacy in Organisational Behaviour”. Academy of Management Review January: 21-30

¹⁶ Efficacy is the ability to produce an effect, usually a specifically desired effect (WIKIPEDIA).

complete with its own leadership, norms, goals, and formal hierarchy distinct from the formal organisational structure. Increased productivity and improved attitudes of workers are seen to be the result of changes in the social empowerment of individuals because of group involvement. This includes the nature of supervision, management's recognition of employee needs, and development of informal employee networks. The studies conclude that the work group often serves as a social support network that buffers the worker against alienation and powerlessness within the work environment (Mayo, 1933).

It was not until the early 1970s, with the emergence of quality management, that interest in the role and importance of the group re-emerged. With the success of a group-based quality management philosophy in Japan, after decades of indifference, American industry began to adopt a group-based philosophy of quality control. Indeed, concepts of group process and team building are at the heart of most modern management philosophies.

The use of group within any given organisation depends on the source and nature of authority, the duration or time horizon, and the group's primary purpose and function. The source of the group's authority or legitimacy may be found in the formal structure and policies of the organisation (e.g. medical practice committee, a quality management team). Alternatively, the group may be manifestation of the

informal organisation (e.g. informal grievance committee). In terms of duration or time horizon, the group may be characterised as ad hoc or temporary (short term) or permanent (long term). The actual life of most groups varies within a wide range (e.g. from one hour or less to a number of years). The primary purpose of formalising the group is to define both the role and the function that the group is to perform within the organisation. The purpose of mission of the group will then be a function of the following:

- The values, priorities, and norms of the leaders, members, and constituencies of the group
- Environmental forces and constraints

Team building as part of the group process is an increasingly important function in the organisation. This seems to be especially true in the organisations, given the interdisciplinary coordination of healing, restorative, rehabilitative, and preventive services to the patient. Team leadership may be provided either formally by a person serving in an official role within the organisation or informally as a result of the group process. The leader is responsible for ensuring that both group maintenance and goal-oriented performance processes are supported by team members if the team is to remain viable and effective.

Group maintenance includes the following:

- Recruitment and replacement of team members
- Orientation and training
- Establishing goals and procedures
- Communicating performance expectations
- Monitoring and measuring performance
- Providing rewards and incentives for performance
- Conflict management
- Personal empowerment

The team should be engaged in appropriate goal- and role directed behaviour to further both the group's and organisation's mission. Much of this behaviour can be characterised as decision-making or problem-solving activities. Without ongoing attention to group (lower-order) functions, the team becomes impaired. This will in all likelihood hinder the group's achievement of its primary (higher-order) purposes.

2. Competition. Organisations today face myriad competitive challenges that they must address to survive and prosper. One of the more important ones is quality and productivity.

Quality is the total set of features and characteristics of a product or service that define its ability to satisfy stated or implied needs (Johnson et al., 1989).

Quality is important for several reasons (Business week, 1992).

First, many organisations are using quality as basis for competition.

Second, increase quality tends to increase productivity because making higher-quality products generally results in less waste and rework. Third, enhancing quality lowers costs.

Quality is also important because of its relationship to productivity. Productivity has become a major issue for many organisations during the 1980s and 1990s. In a general sense, productivity is an indicator of how much an organisation is creating relative to inputs.

3. Resource Allocation. Resource allocation is the process and decision of allocating money to a specific project or business unit (AbdelHak et al., 1996). Project such as HIS implementation usually have a set limit resources and budget. The end result is specified in terms of cost, schedule, and performance requirements.

3.4.5 Theme Two

The Second Driver for Change in HIS literature: User Satisfaction Issues

Several studies have employed user satisfaction as a dependant variable to indicate IS effectiveness and acceptance. User satisfaction has emerged in the literature as a surrogate for system effectiveness (Bailey, 1990). Anderson et al (1994) found in a survey of 40 randomly selected

hospitals that 45% of the IS failed due to users' resistance to change. Health organisations are increasingly recognising that user satisfaction with IS is one of the most important determinates of system success (Downing, 1999). One author stated that user satisfaction is often considered the most important factor in reviewing the quality of an IS (Tan, 1990).

Zivran (1992) performed a study on end user satisfaction, involving three work groups in a hospital with an IS. These work groups were physicians, ancillary department personnel, and administrative staff. The results showed an overall satisfaction level of 0.87 on a scale ranging from -3 to +3. This was characterised as "slightly satisfied". The least satisfied work group was physicians, while the most satisfied work group was administrative staff. The reasons for dissatisfaction of physicians, as indicated by the researcher, were the demanded changes in work habits, extensive functional requirements to interact with the system, and time constraints imposed on physicians. The reasons for the high level of satisfaction among administrative staff were due to the absence of time constraints, and the reduction of time spent on activities performed by this group, such as generating reports.

Metzger et al (1993) also reported that a reluctance to use clinical systems among physicians, partly attributed to difficulties with the use interface. The study finds that the two major tests for ease of use from

the physicians' perspective are user time to complete a task and memory burden.

In addition, other studies found a high correlation between the users' appreciation of the system and the users' application of the outputs. In conclusion, user satisfaction is the most critical factor for a system's success in a health care organisation.

Kjerulff et al (1988) studied employees' attitudes toward the use of HIS. This study developed two attitude surveys toward computers. One was to measure general attitudes of employees prior to exposure to a new computer system, and the other was to measure attitudes toward the system itself. The results showed a significant correlation between the two inventories prior to the implementation, while that correlation was not present at six months and one year post-implementation.

These results indicated that employees' attitudes toward the system became less related to general attitudes held prior to implementation, and more related to other factors such as job satisfaction, and adaptation to the system (Kjerulff et al., 1988).

Burkes (1991) found that nurses' attitudes towards computer systems significantly correlated with computer use satisfaction, beliefs, and motivation. The educational level did not correlate significantly with other study variables. This was in contrast to the result of Strong et al (1985), which found that nurses with greater educational background

demonstrated more favourable attitudes towards computers. Results of this study revealed a negative correlation between computer experience and satisfaction. Nurses with less nursing experience exhibited greater satisfaction with computer use (Burkes, 1991). This contrasted once again with the findings of Strong et al (1985) that nurses with greater length of service in nursing demonstrated more favourable attitudes towards computers.

Chea et al (1994) studied the extent to which a management innovation, i.e. Health Management Information System (HMIS), was being implemented within an organisation in Korea, and reported on the extent to which its implementation was perceived as successful by health care personnel as well as visitors to the centre. Chea et al (1994) employed user satisfaction as a dependant variable to indicate HMIS success, given that user satisfaction is a critical success factor for IS utilisation (Senn, 1978).

A national survey was carried out by Young et al (1993) in the UK to identify the number and type of obstetric computer systems, and to determine end-user satisfaction with these systems. The results of this survey, of the 264 units questioned, showed that 55% of the respondents were satisfied or very satisfied, while 26% were very dissatisfied with their system. Most aspects of dissatisfaction were attributed to slow response rates, system shutdown, perceived extra workload in data entry,

and poor training. Young et al (1993) recommend better uses of existing resources and increased attention to training, especially to training programs that deal with the technical aspects of the system.

Wilson et al (2000) studied user satisfaction with a computerised practitioner order-entry (POE) system at two military health care facilities. A survey was mailed to providers authorised to enter orders into the Composite Health Care System (CHCS), and to pharmacy staff members at two Department of Defense (DOD) medical treatment facilities. Wilson et al (2000) concluded that satisfaction was correlated most strongly with ratings of the POE system's efficiency. Non-physicians were more satisfied, on average, than physicians. No significant relationship was found between other individual characteristics and satisfaction. Qualitative analysis reinforced the finding that users were interested in efficiency issues.

In addition, users at the two military health care facilities were satisfied with the computerised POE system. Satisfaction was most strongly correlated with the perceived efficiency of the system.

The literature review will now go on to discuss specific user satisfaction issues that have been addressed in the scholarly research in this field. Rogers's attributes were discussed in Section One. System quality and training will be discussed in the following part.

1. System Quality.

- A. Accuracy: the HIS provides the precise information the users need.
- B. Timeliness: length of time is minimised between an event and observation that produces the data, the recording of the data, and when the data become available to those who needs the data
- C. Confidentiality: data are protected from unauthorised users.
- D. Content: the HIS provides the precise information the users need.
- E. Format: the output of the system is accurate.

2. Training. Training referred to develop habits, thought, or behaviour of a person by discipline, instruction and practice to impact efficiency and to make the system proficient. The training is measured in terms of the level of understanding of HIS use in general, sufficiency of content, adequacy of time and level of general satisfaction.

Training of HIS users is an important stage of introducing new system in any health organisation. A perfect training program assures user involvement, growth, and competency through the changing needs of the future computer environment (AbdelHak et al., 1996). Many problems encountered by end users are not related to HIS, but problems with the computer environment. These problems can be understood from the training phase. The more the end user understands this environment,

which includes the hardware, operating system, network system, operating system utilities and communication setups, the better he will be at isolating problems that develop (Hinton, 1995). Briety (1995) emphasises the importance of training in the process of implementation of HIS.

3.4.6 Summary. The previous studies have proved that there are many factors that contribute to the success or failure of IS in health care organisations. Originally, implementation of IS in organisations was considered to be a technical issue, with the main efforts focused to make the technology meet user requirements. Later, the increasing awareness of a more wide range of issues related to organisational, personnel, and user satisfaction issues initiated the need to recognise the importance of such factors in the implementation stage of the IS.

As mentioned, many factors could affect the implementation of HIS, but whether the need is to adopt a new single system or to integrate multiple systems, the importance of team cooperation, top management support, user participation, system usage, adequate training, and a supportive organisational culture remain key factors for a successful implementation.

In conclusion, the research underscores the importance of the following forces for managing change in organisations. They relate directly to the problems identified in this chapter, and to our view of the organisation as

a social system. Each can influence the elements of a social system and may help the organisation avoid some of the major problems in managing change. Based on the factors of influence, a conceptual framework was developed as shown in table 3.8. This conceptual framework served as a good basis for the researcher to design the first stage of this study.

Table 3.8 The Three Themes of HIS Implementation Process and the Factors that could be Driving or Restraining Forces*

Cultural		Organisational	User satisfaction
Language barrier (Sabatino ,1993; Burner, 1990; Thomas: 1990)	Organisational diversity (Burner, 1990; Thomas .1990)	Organisational size (Kimberly, 1976)	Content (Bailey, 1990; Zivran. 1992; Anderson.1994)
		Bureaucracy (Senn, 1987; Ash et al.,2003)	Format (Bailey, 1990; Zivran, 1992; Anderson,1994)
		Centralisation (Hall et al., 1982; Child, 1984)	Timeliness (Bailey, 1990; Zivran. 1992; Anderson.1994)
		Policy and regulations (Ives et al.,1980)	Confidentiality (Bailey, 1990; Zivran, 1992; Anderson,1994)
		Leadership (Bennis et al.. 1966; Tompkins, 1982; Lorenzi et al.,1999)	Training (Briety, 1995; et al., 1996)
		Quality of planning (Simon, 1976; Ash et al.,2003)	Relative advantage (Rogers, 1983)
		Top management commitment (AbdelHak et al., 1996; Lorenzi et al.,1999; Ash et al.,2003)	Compatibility (Rogers, 1983)
		Formation of implementation team (Senge, 1992; Mayo, 1933)	Trialability (Rogers, 1983)
		Quality of communication (Peters et al., 1984)	Ease of use (Rogers, 1983)
		Resource allocation (AbdelHak et al., 1996)	Observability (Rogers, 1983)
		End-users involvement (Powers et al., 1973; Ives et al., 1984)	
		Resistance to change (Katz et al.,1978)	
		Competition (Johnson et al.,1989)	
		Uncertainty (Draft, 1989)	
		Incentives (Mannion et al.,2002)	

3.5: Section Four

Implication of the literature review on decisions regarding the current study

Need to conduct the study. The researcher reviewed the literature to identify what are the factors that contribute to a successful change initiative. The question is: how did the top management in Kuwait HCDS implement HIS previously?

It is important to conduct this study in order to identify the driving forces that promote successful implementation. It is hoped that we can learn from the previous implementation attempts, and enrich the implementation research literature with a new and dependable evaluation of factors that may affect the success of HIS implementation in a different context, i.e. Kuwait.

This study will identify and describe the factors that have previously affected, and may continue to affect, the success of future HIS implementation in Kuwait's HCDS, as perceived by the concerned stakeholders in both the private and public sectors. In addition, the study aims to use its results to improve future HIS implementation.

What study design? The design of this study should avoid the limitations found in many of the studies covered in the literature review. Ideally, it should be an exploratory study in which a qualitative and

quantitative study design are combined, since little is known about HIS implementation in Kuwait. Great attention should be given to the design in order to avoid the different kinds of biases that may have affected previous studies. Attention will be paid to methods that reduce bias, e.g. random sample size, and independent data collectors. The study should include samples that are either randomly selected or include all subjects, to ensure the representativeness of the population. The sample size should be pre-planned to ensure the study has the power to detect differences judged in advance to be reasonable and important. In many cases, the researcher's presence can alter behaviour, leading to invalid measures. That notwithstanding, the researcher needs to remain on the site long enough to become familiar, use unobtrusive measures, and seek input from informants to avoid this effect (Miles et al., 1994).

3.6.1 Summary. Section One, Two and Three of this chapter gave a background picture of the change models, IS implementation literature, and HIS implementation research in the setting in which the current study was conceived, while Section Four was concerned with establishing the rationale for the present study: Why is this research needed? And why are the methods chosen the most appropriate for the research questions?

This research is needed because little is known about this area. It is hoped that the outcome of this study will enrich the implementation

research literature with new factors that may improve future HIS implementation in Kuwait and other countries that have similar cultures. In addition, the review of the literature has shaped the methods planned for this study. Details of these methods are presented in the next chapter.

CHAPTER FOUR

METHODS

4.1 Overview

The term ‘methodology’ embraces a full range of techniques available for the purpose of research design, and as such represents a broad strategic approach. As Nachmias (1992:14) observes:

“Science is not united by its subject matter but rather by its methodology”.

This chapter describes and explains the reasons and criteria for the selection of methods and techniques used in the present study. The methods and findings are divided into three chapters as outlined in Figure 4.1. In this chapter, an overview of the whole research study is given followed by a representation of the research study’s aims, questions, and design. Chapters Five, Six and Seven are concerned with the three stages (quantitative and qualitative) in which the current study was conducted. Since the findings of each stage may affect the design of the subsequent stages, the description of each stage in these chapters is followed by a description of its findings. Finally, each chapter is concluded with a summary of its contents.

Figure 4.1: Outline of the Methodology Chapters

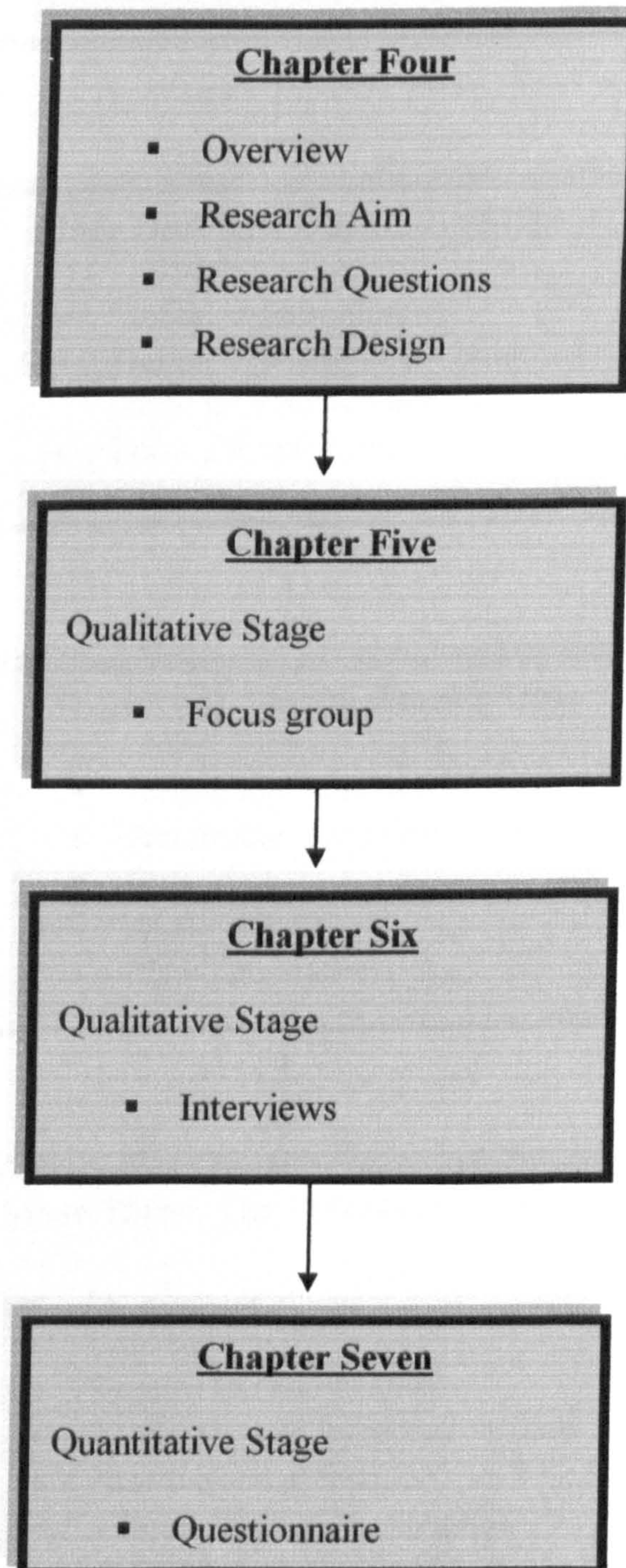
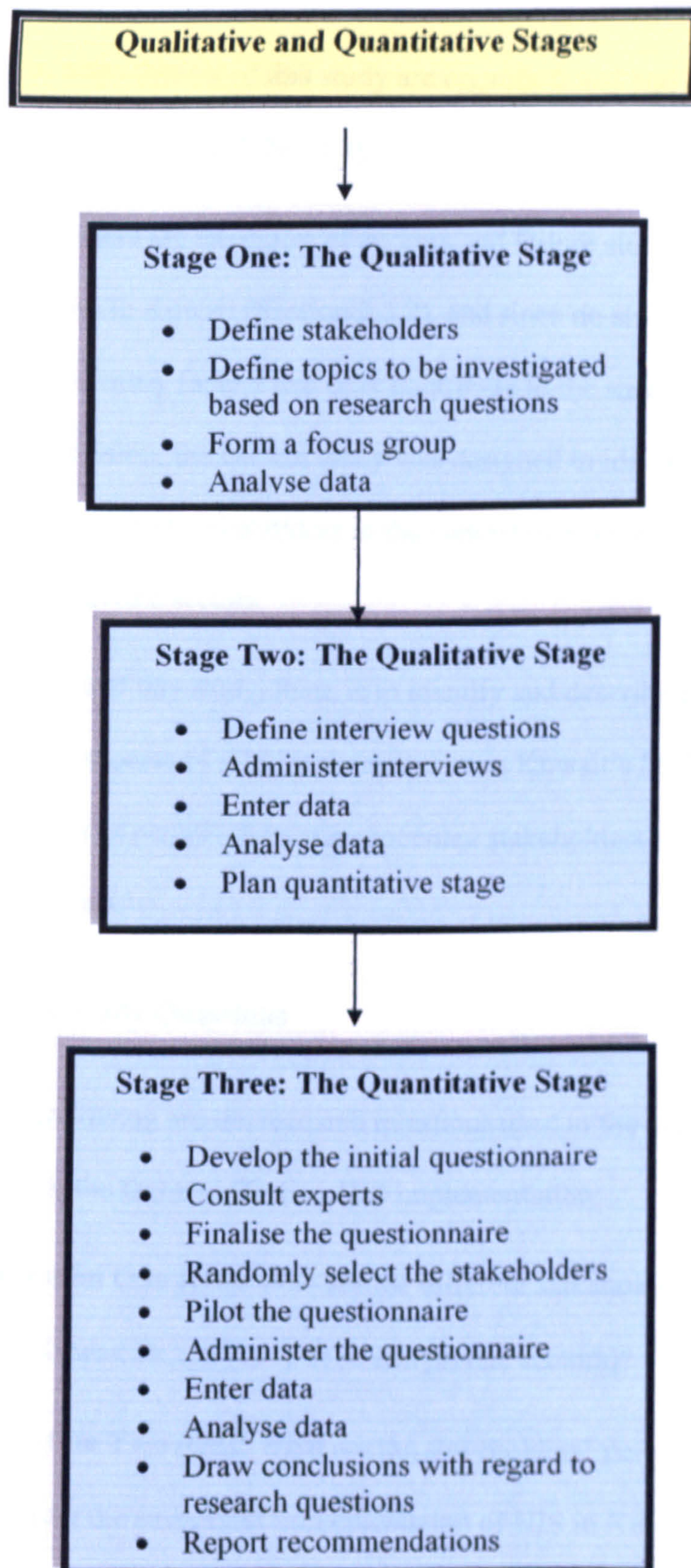


Figure 4.2: The Stages of the Current Study



4.2 Research Study Aims

The main themes of this study are organisational and cultural issues, and user satisfaction (see Table 3.8).

Since there are examples of success and failure stories of HIS implementation in Kuwait (Section 2.3.2), and since no study has yet been conducted to identify factors that may contribute to the success or failure of HIS implementation, the current study was designed to identify such factors as described by different stakeholders in the context of Kuwait's HCDS, in both its public and private sectors.

The aim of this study, then, is to identify and describe the factors that may affect the success of HIS implementation in Kuwait's health care delivery system as perceived by the concerned stakeholders in both the private and public sectors.

4.3 Research Study Questions

The following are the research questions used in the current study.

With regard to the factors affecting HIS implementation:

Question One (Q1): Who are the different stakeholders concerned with HIS in Kuwait HCDS (i.e. public and private sectors)?

Question Two (Q2): What are the stakeholders' perceptions of the factors affecting the successful implementation of HIS in Kuwait's HCDS (i.e.

public and private sectors), especially with reference to the themes outlined in 3.8?

Question Three (Q3): How can we use the results of the study to improve future HIS implementation?

4.4 Study Design

As Adams (1985) describes it, the purpose of exploratory research is:

“To seek out new insights, ask questions, and assess phenomena in different perspectives. It serves three main purposes: (1) to satisfy curiosity; (2) to build methodology that might be used in later, more tightly designed research; and (3) to make recommendations regarding the likelihood of continuing with additional research on the topic”.

Thus, since little is known about HIS implementation in Kuwait, some exploratory research seems to be called for, in order to answer the research questions set out in the current study (Section 4.3).

This research deals with and comes under the broader area of management function. Management research, most scholars agree, can be qualitative or quantitative depending on the nature of the study. A merely qualitative approach was considered. However, the richness of data that would be gained from questionnaires persuaded the researcher to also follow a broader strategy by using an additional quantitative approach. In qualitative research, a researcher is generally interested in categorical rather than numerical responses (Yin, 1982). However, there are also some further, and potentially more important considerations. When the interest of the researcher

is in collecting data at the location of the study, and the concern is with the context and the field that the specific situation provides, one generally opts for a qualitative method. Furthermore, when the research is concerned with outcomes that are related to specific subjects, the major concern is to know what information came from where, how it emerged and, most importantly, under what circumstances the data were collected. In circumstances and situations where a researcher is interested in certain specific kinds of behaviour, qualitative methods are far more suitable (Rubinson et al., 1987).

This study involves all of the processes mentioned above.

Furthermore, the research is process-oriented rather than outcome- or product-oriented, and the results are to be analysed on the data inductively. Finally, this research is primarily exploratory research. Therefore, both qualitative and quantitative methods are considered appropriate (Rubinson et al., 1987; Anderson et al., 1983; Gay, 1987; and Yin, 1982).

In all, this study was an exploratory study in which quantitative and qualitative approaches were used in order to seek answers to the research questions set out in Section 4.3. Quantitative and qualitative research methodologies were used to seek answers to the current study's research questions, which built upon each other in a step-by-step fashion (Section 4.3). The non-random limited sample chosen for the qualitative stage may affect the generalisability of the result to the population. This bias was eliminated in the quantitative stage, when a random representative sample was sought. Therefore, the generalisability of the result is optimised in this stage of

the study. A study protocol was written and an ethical committee approval was required. In Kuwait, the MOH convenes the ethical committee for research in health settings.

The following chapters will describe the three stages in which the current study was conducted, as shown in Figure 4.2. The first two stages of this study were qualitative stages, whereas the third stage, which will be described in chapter seven, is the quantitative one. The findings of these three stages, i.e., the qualitative and quantitative, are presented in the next chapters.

4.5 Summary

The aim of this study is to identify and describe the factors that may affect the success of HIS implementation in Kuwait's health care delivery system as perceived by the concerned stakeholders in both the private and public sectors. This study is an exploratory study in which qualitative and quantitative methods were combined to seek answers to the current study's research questions which built upon each other in a stepwise fashion. The first stage, i.e., the focus group, will be discussed in detail in the next chapter.

CHAPTER FIVE
QUALITATIVE STAGE
FIRST STAGE: (FOCUS GROUP)

5.1 Overview

The primary reason for collecting qualitative data in the current study was to identify Kuwaiti stakeholders' views of HIS implementation factors as identified in literature review chapter, allowing them to generate other factors. The framework presented in this study is drawn from a body of literature on management of change, IS, and HIS implementation. Therefore, it is not merely based on one single pre-established theory (see Table 3.8).

A case study of a public and private hospitals was considered, to ask key informants questions about the organisation, observe aspects of what is going on in the workplace, and examine the factors that affected successful HIS implementation. Hammersley (1992a:184) defines a case study as research investigating a small number of naturally occurring cases, as opposed to an experiment (in which the cases are created by the researcher) or a survey (in which a large number of cases are investigated). Green et al (2004:156) said:

“Case studies and ethnographic research will often draw widely on a variety of documentary sources in addition to data from interviews and observations, including perhaps reports from the organisations studied, diaries of research participants, or material artifacts used and produced in the setting”.

Since it is highly unlikely that the MOH would give the researcher the permission to use the documentary source, this method was excluded.

The researcher considered the applicability of directly observing the behaviours of participants in the workplace (non-participant observation). However, the focus of such a method is on the microcosm of activity being observed in the particular situation. In varying degrees, the researcher influences the individuals being studied and, in turn, is influenced by them. The mere presence of the researcher may alter behaviour in the setting. This involvement is considered as a source of bias in qualitative research. In addition the MOH refused to consent non-participants observation because of that this method was excluded.

The researcher due to the time constrain considered focus group. There are many advantages of focus groups as a resource for the researcher. Green et al (2004:111) observes: "Focus groups have the potential for producing considerable information in a fairly short space of time". She added that:

"The focus groups can therefore be used in more observational designs. In health research this is a real advantage when we want to access not just how people talk to each other about health matters, but also how knowledge about health is produced and reproduced in 'natural' social situation. It can also be an advantage when researching workers in health service settings. For instance, interviewing ward staff in a group allows the researcher not just to observe who says what, but also who speaks most, which kinds of staff dominate, and whose comments are taken seriously. A further

advantage is that some sensitive issues may be more readily discussed within group settings” (Green et al., 2004:113).

On the other hand, Green et al (2004:120) suggest that the advantages of the focus group are also their limitations. She said:

“Group settings may be ideal for accessing cultural norms, and how they are reproduced in everyday talk, but this means they are perhaps less useful for accessing in-depth accounts of socially deviant or marginal opinions. Group dynamics, with the dominance of particular group members, are a useful indicator of the hierarchy of opinions, and the ways which marginal ones are ‘silenced’, but also limit the expression or elaboration of less acceptable opinions or the views of those lower in a status hierarchy. Thus, using ward-based natural groups to look at the views of health professionals in a hospital may be useful way of accessing how various professionals talk to each other, but the more junior staff way of accessing how various professionals talk to each other, but the more junior staff may feel too inhibited to speak out, or to disagree with senior staff”.

Focus groups are used at a number of different stages of the research process. They can be used as a preliminary tool to help develop questions and key topic areas for a structured or semi-structured questionnaire. Focus groups can help explore or expand on topics or issues that arise during the course of a study. They can also be used in a confirmatory sense towards the end of a study, by presenting the draft results of a project to the study population to see if it concurs with their beliefs and experiences. Since little is known about this area in Kuwait or

beliefs and experiences. Since little is known about this area in Kuwait or other Arab countries that share similar culture the researcher considered this method as a preliminary step that provide input to the development of interview schedule or a survey instrument, and other measurement instruments in the social sciences.

Even though the threat of intimidation of junior staff is very real, it was felt that it was worth using focus groups because of the potential to access 'social' knowledge. It was felt that the 'personal' views of junior staff would be accessed through interviews anyway.

5.2 Sampling Method

Burns et al (1997:211) explain that social systems consist of formal and informal structures. They argue that:

“Formal structure is related to authority and power. Informal structure is related to who interacts with whom under what circumstances. Every social system has opinion leaders who are in favour of innovations and those who oppose change. Opinion leaders are at the centre of the system's interpersonal communication networks and tend to reflect the norms of the system. In seeking adoption of an innovation within a social system, one must identify the opinion leaders and seek their acceptance”.

There are other people who are also involved other than the 'opinion leaders', such as the end users who will actually be using the system. Such persons are referred to as stakeholders in this study. Therefore, stakeholders can be defined as those who are involved with the decisions surrounding HIS

implementation. They can either be the decision makers, i.e., management, or end users. The identification of the concerned stakeholders (Q 1) based on the definition accepted by this study is a logical process that progressed throughout the study. The researcher examined the MOH chart (Figure 2.2), Al-Farwaniya hospital chart, and Al-Hadi hospital chart in order to identify stakeholders. The selection of stakeholders to study and the specific subjects to study was fair; and the risks and benefits of a study were fairly distributed based on the subject's efforts, needs, and rights. Subjects were selected for reasons directly related to the problem being studied and not for "their easy availability, their compromised position, or their manipulability" (National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research, 1978:10).

Random selection of subjects can eliminate some of the researcher's biases that might influence subject selection. A major concern in conducting research is finding an adequate number of appropriate subjects to take part in the study. But qualitative samples tend to be purposive, rather than random (Morse, 2002). Purposive sampling is referred to as judgemental sampling. It involves the conscious selection by the researcher of certain subjects or elements to include in the study (Burns et al., 1997).

Green et al (2004:102) stated that:

"Most qualitative research has an aim of purposive (sometimes called purposeful) sampling; that is, explicitly selecting interviewees who it is intended will generate appropriate data".

On the other hand, Patton (1990:182) said that the aim of purposive sampling is to include ‘information-rich cases for in-depth study’. In addition, purposive sampling was used to represent a range of constituencies and perspectives on HIS implementation in Kuwait.

This approach was used in the qualitative stage of this study, i.e., focus group and interviews. The researcher decided to seek subjects with particular characteristics (based on their knowledge and experience with HIS implementation) in order to increase theoretical understanding of some facet of the phenomenon being studied. The strategy has been criticised because there is no way to evaluate the precision of the researcher’s judgement. However, this sampling method may be a way to get some beginning ideas about an area not easily examined using other sampling techniques. Sandelowski (1995:180) suggests that:

“Purposive sampling can be too small to achieve informational redundancy or theoretical saturation or too large to perform the detailed analyses of data required in qualitative studies”.

In order to collect data regarding factors affecting HIS implementation (Table 3.8), first a focus group was formed. The data collected from the focus group was analysed for use in developing an interview schedule. The results gathered from the focus groups were grouped as important implementation issues and then categorised and used for the interviews, as will be detailed in the following chapters.

5.3 The Focus Group

In order to tackle the current study's research questions (Section 4.3), an exploratory focus group was assembled to assist with the development of an interview guide. Research questions and official documents from MOH (1982, 1985, and 1995) were used to develop an interview guide. The interview guide contained an introduction, detailing the purpose of the meeting and the rules guiding the interviews, including participants' anonymity and confidentiality. Consents to tape-record were obtained from each participant. The researcher used the following sources for in-depth detail on how to develop an interview guide: Glasser et al (1967) and Stewart et al (1991). Two university professors in Kuwait that had expertise in conducting focus group interviews validated the focus group interview guide.

5.4 Setting

Since the objective of this study was to identify factors affecting successful HIS implementation, only examples of success versus examples of failure were included to identify the success factors. Three of the six public general hospitals in Kuwait (see Section 2.1.8), i.e., the Al-Farwaniya, Al-Amiri and Al-Adan hospital, implemented HIS unsuccessfully. The Al-Farwaniya was selected randomly to conduct the discussion of the group (see Section 2.3). On the other hand, in the private sector, of the four private hospitals in Kuwait, only Al-Hadi and Al-Mowasat implemented HIS

successfully. The Al-Hadi hospital was selected randomly to conduct the discussion.

5.5 Focus Group Participants

A small selected group of stakeholders from the hospitals were identified and then contacted (see Section 5.2). The groups in the public and private hospitals were selected based on their knowledge and experience in HIS implementation. The researcher pinpointed those who were involved with the decision of HIS implementation, based on her experience with the Kuwaiti HCDS and the assistance of the Office of Administrative Affairs at the MOH and Al-Hadi private hospital. The 2002 Kuwaiti HCDS membership directories for MOH and the respective hospitals were also used in this process. The selected group was contacted via e-mails, phones, or personally approached to set an appointment for the focus group meeting. The first group (public) consisted of six people: the director of HIS, the clinical director of the hospital, a clinician, technician, nurse, and a medical clerk. The second group (private) consisted of two people: a clinician (who is a medical director) and a medical record clerk.

Focus group sessions were conducted over period of two days. Each focus group session took between one and two hours to complete. Audio taping was pre-tested to determine any recording problems before the focus group session started.

The following ethical considerations, related to the researcher-respondent relationship, were considered, as suggested by Sarantakos (1993):

- **Right to privacy:** the researcher will respect the respondent's privacy when entering their personal sphere, and when asking questions.
- **Proper identification:** the researcher will identify himself to the respondents and will avoid giving false impressions of herself or the aim of the study.
- **The right to anonymity:** data collected by the researcher will be anonymous, that is, not related to names or other forms of identification.
- **Free and informed consent:** respondents will participate in the research freely and will not be pressured or deceived in any way.
- **The right to confidentiality:** information offered by the respondents will be used only by the researcher, and only for the purpose of the study.

5.6 Focus Group Moderators

There are specific issues affecting this study: the researcher, who is a Muslim Kuwaiti woman (33 years old), collected data (initial pilot work to look at feasibility and predict problems with implementation) while surrounded with familiar stakeholders with whom she worked with in MOH

for two years (in 1995 to 1997). It was, therefore, sometimes difficult to focus completely on the study situation. This could, potentially, have led to loss of data, influenced stakeholders' behaviour, and might possibly have altered the outcome of the study. In addition, in Arab countries, especially the Gulf region, it is very hard for a Muslim woman to interview men without the presence of a third person such as her husband, brother or friend, due to religious and cultural issues (especially in the public sector which is populated with Kuwaiti Muslim men). Because of that, the researcher decided to employ a moderator for the public sector.

One independent non-Kuwaiti (Christian) woman aged 47 years who is a clinical instructor in Kuwait University was employed by the researcher as focus group moderator for the first focus group session (public sector) to maintain some degree of objectivity, remain neutral during the process, and eliminate the influence of previous experiences the researcher might have had. In addition, since the moderator is non-Kuwaiti, the researcher believed that participants would be more open to discuss the issues. She was interviewed by the researcher. The aim of the interview was to evaluate her English and Arabic fluency, and the level of comfort when talking to the participants. The researcher and the moderator were trained for one day by two university professors in Kuwait that had expertise in conducting focus group interviews. The intended purpose of the training was to familiarise the researcher and the moderator with the interview guide and the data collection process. The

researcher and the moderator were also trained with respect to interviewing skills, such as follow up questions and nonverbal communication. It should be noted that the researcher was the moderator for the second focus group session (private sector).

5.7 Data Collection

At the beginning of each session, the focus group moderators (the researcher and the female who is a clinical instructor in Kuwait University) introduced themselves and explained the purpose of the study. Prior to the meeting, the group members were provided with the study protocol and the ethical committee approval from the formal gatekeepers (MOH and Al-Hadi hospital top management), whose permission is needed before fieldwork can commence, and informal gatekeepers (hospital management and staff), without whose support field work will be impossible in practice (Green et al., 2004:143), as detailed in Appendix 5. The group discussion was conducted in English, since all members were able to speak it; however, both participants and moderators were allowed to use the Arabic language when necessary.

The discussion was based on their experiences with HIS implementation in Kuwait HCDS. While the analysis were directed initially in terms of factors that were identified in Table 3.8. The discussion was audio taped with the permission of the group members. Participants were assured of anonymity and confidentiality (see Section 5.4). The audiotapes were transcribed for data analysis. Before the session started, demographic data on

age, sex, level of education, and job position were collected using a questionnaire. In addition, each participant was assigned an identification number. The focus group format employed semi-structured, open-ended questions with three follow-up prompt questions (see Box below). The moderators summarised the responses before making the transition to the next major question, so that the moderators could check they had understood the key points (Green et al., 2004).

To show appreciation for their participation, each member was given incentives to participate in the study, including refreshments before, during, and after the sessions. Furthermore Starbucks coupons of the value of 10 K.D. (£20) were offered.

5.8 Focus Group Data Analysis

The researcher and the focus group moderator listened to each tape three times. The tapes were checked for clarity and flow of discussion. Then, each tape was transcribed. Qualitative research usually yields a large amount of text data representing opinions, expertise stories, and valuable points of view. This data was in the form of textual data, not in computer-ready codes: hence, the need for a coding system with proper and distinctive codes.

Box 4: Focus Group Interview

Group to last 1-2 hours.

Ask participants to complete brief questionnaire (demographics).

Group Task 1 (30 minutes)

- Since you have a computerised system, how is it performing?
- In your opinion what are the factors that affected successful HIS implementation?

Prompts for general discussion (50 minutes):

- It is common practice that employees are provided training so that they are ready before introducing a new system? Does your hospital have a training system?
- Is there a job description or guidelines for the employees?
- In your opinion, does the hospital have a system of incentives or rewards for better work performances?
- It is generally believed that some non-Arab employees of the MOH have difficulty in comprehending Arabic and some Arab employees have difficulty in comprehending English. Do the employees in the professional categories covered in your hospital face such a difficulty? Is there an existing system for evaluating the competency and effectiveness of hospital employees?
- What is it?

Summary by moderator.

Conclusion (5 minutes).

- Is there any other issues related to HIS implementation you would like to discuss?
(ask each participant)
- Summary with moderator. Thank participants, hand out Starbucks coupons

Therefore, the framework approach (Pope et al., 1999) was used to analyse data collected. Ritchie et al (1993:34) also observes that recently, an approach to qualitative analysis is gaining popularity in health-related research, namely 'Framework Analysis'.

Lacey et al (2001:9) says that:

“The framework approach was explicitly developed in the context of applied policy research. She adds that this kind of applied research aims to meet specific information needs and provide outcomes or recommendations, often within a short timescale. The benefit of the framework approach is that it offers systemic and observable stages to the analysis process, so the researcher can be clear about the stages by which the results have been obtained from the data. Although in its general approach, the analysis is inductive, it allows for the inclusion of a priori as well as emergent concepts, for example in coding” (Lacey et al. 2001:9).

This can be important in many applied studies, where there are specific issues that the funders or other stakeholders want addressed (Pope et al., 1999:85). In addition, it allows the researcher to begin with a theory, relevant to the research context, which has already generated a theoretical structure. This approach consists of five key stages (adapted from Lacey et al., 2001:13). These can be undertaken in a linear fashion and therefore all data can be collected before analysis begins, although framework analysis can equally be used when data collection and analysis occur concurrently (Lacey et al., 2001).

Box 5:**Key stages of Framework Approach:**

Familiarisation

Identifying a thematic framework

Indexing

Charting

Mapping and interpretation

Familiarisation Stage. In this stage, the researcher listened to tapes, read and re-read the data, made memos, and summarised the data before the formal analysis began. This is an important stage, because the researcher had not gathered all the data herself.

Identifying a Thematic Framework. In this stage, an initial coding framework was developed both from a priori issues and from emerging issues from the familiarisation stage. This thematic framework was developed and refined during subsequent stages.

Indexing. In this stage, the process of applying the thematic framework to the data was carried out, using numerical and textual codes to identify specific pieces of data which correspond to differing themes (this is commonly called coding in other qualitative analysis).

Charting. In this stage, the data were arranged under each part (i.e. themes) of the thematic framework in a chart form. Charts can be either thematic for each theme (for example, organisational, cultural, and user-

satisfaction) across all respondents (cases), or by case for each respondent across all themes.

Examples:

Thematic Chart

	Case 1	Case 2	Case 3
Theme: Organisational issues			

As opposed to:

Case Chart

	Theme 1: Organisational issues	Theme 2: Cultural issues	Theme 3: User-satisfaction issues
Case			

In the chart boxes, the researcher placed line and page references to relevant passages in the transcripts. The researcher also included some text, e.g. text words or shortened quotations, as a reminder of what was being referred to. For example, the theme boxes contain both paraphrases of key issues as well as snippets of data, to ‘hit’ the researcher’s memory about the content of the themes.

Beside this text, there are page and line references to aid easy retrieval of the original data in the transcripts:

	Theme 1: Organisational issues	Theme 2: Cultural issues	Theme 3: User-satisfaction issues
Case 1: End user (clerk)	Lack of support from top management for the new innovation (2:15) Poor quality of planning (5:12)	Unhealthy competition (1:4) Money (3:11) Differences in salary structure (4:9)	The system is not easy to use (1:16) I didn't have any training (7:4)

Mapping and interpretation. This stage proposes searching for patterns, association, concepts, and explanation of the data, supported by visual displays and plots. Ritchie et al (1993:186) suggest that:

“At this stage, the qualitative analyst might be aiming to define concepts, map the range and nature of phenomena, create typologies, find associations within the data, provide explanations, or develop strategies. It should again be emphasised that the areas the researcher chose to focus on were dependent both on the themes that emerged from the data and the original research questions”.

Ritchie et al (1993:186) adds that:

“This part of the analytical process is the most difficult to describe”.

Also, Miles et al (1994) offer a wide range of display ideas, which may be useful for exploring data in the context of framework analysis. For example, using this study of HIS implementation, the researcher was interested to see if there were any additional factors that could be added to Table 3.8

5.9 Focus Group Findings

Participants’ Demographics and General Information. There were two focus group sessions. In the first one there were six members of the focus group; they were from Al-Farwaniya hospital (public sector). There were 3 males and three females in the first group (public sector). All participants from the public sector had worked with HIS. Their experience with HIS ranged from six to eighteen months. They had different job positions (Section 5.4). They either had a high school level of education (two of the members) or a baccalaureate degree.

There were two members (one male and one female) from Al-Hadi hospital (private sector) in the second focus group. The two participants from Al-Hadi hospital had both worked with HIS. Their experience with HIS

ranged from four to 11 years. They had different job positions. All participants (public and private) spoke English.

Participants' Experiences with HIS Implementation. Participants were asked about their experience with HIS implementation in Kuwait HCDS, including the public and private sectors. The majority of participants shared the same set of opinions, but reasons given varied slightly and will be included under each theme.

It worth noting that some of these factors are not mutually exclusive, but they are sometimes interrelated. For example, unclear responsibility could be under organisational or cultural theme; training could be under organisational or user satisfaction. These findings will be discussed in detail in the following section:

Theme 1- Conflict with Existing Organisational Structure (Organisational Issues). The following factors were considered organisational because they were similar to factors identified in the literature (see Table 3.8), i.e., quality of planning, uncertainty, end users involvement, resistance to change, and incentives. A new factor was added to the organisational theme, i.e., IT specialist turnover.

Insufficient Planning and Uncertainty about Procedures. Although end users were hesitant to express their feelings most end users in the public sector blamed the poor quality of decision-making and planning by top

management as one prominent factor causing system implementation failure.

One participant said:

“There are problems with officials at the top management due to the lack of strategic planning”.

Participants indicated that the MOH, as an organisation, may not have a defined strategic planning process. Participants mentioned that if there were strategic plans, they should have known that, or at least it should have been shared with them.

On the other hand, one end user (physician) indicated that uncertainty about the HIS was an important difficulty. He argued that there was insufficient information delivered to them regarding the HIS concept, advantages, disadvantages and implications of using such a system. He said:

“Uncertainty and unfamiliarity with the system caused resistance to change from users”.

He added that participants were uncertain about why they were using the system. He believed that decision-makers at MOH did not have adequate information regarding the innovation itself; therefore they failed to communicate adequate information on the benefits for adopting the system. Thus, it creates an unclear picture for different managerial levels within the MOH and the system's users. In addition, users have self-doubt as to whether

they will be able to work with a high-tech system such as HIS, to meet the objectives or not.

On the other hand, a private sector participant (a clinician who is a medical director) indicated that insufficient communication between the top management and employees cause uncertainty about the innovation. He also added that supportive leadership and competent innovative staff are a pre-requisite for innovation acceptance. The top management of Al-Hadi hospital said, planning is often looked on as an inefficient activity by action-oriented managers and employees, however, if done carefully and systemically, planning can reduce rework and increase the overall efficiency of organisational activities. For planning to be effective, it must involve many people in the formulation and implementation process. One of the most important aspects of the effective implementation of plans is to ensure that plans flexibility is built into the planning process.

Lack of End users Involvement, Increased Workload and Top Management Commitment. Another factor was related to users' involvement in the decision to adopt HIS. One participant said:

“Involvement of the users in the decision making process is an essential part of implementing the HIS”.

End users stressed that their input was not considered when planning the system, which indicates lack of communication between them and the top management. This had many consequences. One is that it caused

incompatibility of the system with the users' needs. It also affects the training courses offered by top management. This is logical since if the users' input or needs were not considered the top management will be oblivious to their needs, and will provide courses that are not helpful. Based on that, the end users argued that this lack of users' involvement in the early stages of HIS implementation process caused uncertainty about the benefits the system may offer. They related this uncertainty of benefit to their lack of enthusiasm to use the new system, which they did not deny. They also related that to their perception of increased workload expected by the new system implementation.

The top management (clinician) in the private sector stressed the careful planning is an important factor in system success. Time should be taken to carefully plan the system and consider it from different perspectives. One perspective is the ease of use of the system while maintaining information needs of users. The management's commitment to the system implementation and providing the role of a leader to the rest of the organisation, while participating as a team member during the implementation process. Indicating that there should be a team that is specifically developed to supervise the process of implementation. The team should include all those who are involved in the process. They also stressed the fact that the system should be continuously evaluated to ensure its functionality and needs satisfaction.

Participants stressed that in Kuwait there is still a technological gap that is preventing the optimal use of HIS. The successful implementation of HIS on a National Level will require the collaboration and cooperation of the MOH facilities. In addition, the collaboration of other important ministries and organisations is essential. This will include the Ministry of Communication and Planning Services. An IT specialist said:

“We don't have technology infrastructure to support such huge project”

On the other hand, private sector participants (a clinician and clerk) believed that end users' involvement was critical for system success. They predicted that user participation in the system development would improve system quality.

Resistance to Change due to Professional Pride, and Lack of Experience. Several participants reported that there was a high degree of clinician autonomy and low acceptance of change. Clinicians expected to be included in the decision making processes. Clinicians felt that other hospital staff were having a greater say.

Several participants pinpointed that end users' resistance to use the new system is a major factor that may cause implementation failure. One clinician said:

“We as physicians did not know why we have to use the system”

This indicates that implementation of even the best updated HIS may fail if users lack the enthusiasm to use it. They related this lack of enthusiasm and resistance to use by the end users to their lack of experience in the area of information systems and what they (i.e. HIS's) may offer. There was also a link between users' lack of experience and knowledge and their unjustified perception that such systems may increase their workload.

The representative of top management in the private sector, who was a clinician, indicated that some employees like the comfort and security of doing things the same old way. He added that they get a feeling of continuity and safety in knowing that some things stay the same despite all the change going on around them. Thus, people who believe that their security is threatened by a change are likely to resist the change. Employees in the private sector who contribute to the change in any way were rewarded. Also the top management in the private sector (clinician) believed that open communication was an important factor in managing resistance to change and overcoming information and control problems during transitions.

No System of Sanctions or Rewards. The management from the public sector stressed that rules and regulation may be a factor. Most of their employees are Kuwaitis and, the state provides job opportunities for them with “no system of accountability and punishment of poor performance”. They added that the lack of accountability reinforcement may have affected the successful implementation of HIS.

Non-Kuwaiti participants from the public sector indicated that the government of Kuwait follows a policy of “Kuwaitisation”. It is quite common for non-Kuwaitis, who are qualified and competent, to supervise technical positions. It is uncommon however, for Kuwaitis to work under non-Kuwaiti supervisors. They believe that incompetent and less qualified Kuwaitis are placed as the supervisors or administrators.

A follow up question assessed the end user participants’ opinion regarding issues raised by the top management participants. There was unanimous agreement that the current system of ‘no accountability and punishment of poor performance’ has not helped HIS implementation. The end users added that there were no incentives to use the new system or change their old ways of doing routine work. The end user participants explained that some kind of incentives or rewards would encourage users to adopt the system and support it. One participant said:

“I am a Kuwaiti, nobody can fire me and I will be paid whether I do a good or bad job”.

On the other hand, private sector participants indicated that they receive rewards for outstanding work, in addition to verbal acknowledgement and, in some cases, a letter of appreciation. Also they indicated that the top management in their hospital has a system of peer review based on which negligence or neglect can be punished. But in actual practice the informal

modalities are used to give warning, counseling, or caution, and formal actions are seldom taken.

Lack of IT Specialist and Competition. Participants from the public sector expressed knowledge of an increased number of resignations among expatriate professionals, especially IT specialist since the liberation of Kuwait from the Iraqi occupation in 1991. One participant said:

“Lack of specialised people in IT in Kuwait is one of the main HIS implementation problems”.

The major reasons attributed for this have been the fixed wages, which have not been increased for a long time. They indicated that the Undersecretary of the Ministry and the concerned Assistant Undersecretaries reported that they had requested the Civil Service Commission, on a number of occasions, to increase wages but due to the State deficit the requested increase had not been approved.

They also added that another reason for the possible high turnover was to the perceived fear of the Iraqi regime. Historically, the expatriate employees enjoyed working in Kuwait as it offers a relatively freer cultural and social environment compared to some other Gulf Corporation Council countries, such as Saudi Arabia. But giving the political uncertainty in the region, some professionals opt not to keep their dependants in Kuwait; and therefore, after some time, some of them prefer to leave Kuwait and seek employment elsewhere. One IT specialist said:

“I am looking for a job in the US. I can make more money there, I can own a house, and bring my family, and it is not safe here in Kuwait. I am always scared that Iraq will invade Kuwait again”

Another aspect reported by the non-Kuwaiti participant (nurse) pertains to a relative increase in restrictions on the visas of the families and dependants that have taken place since the liberation. The Kuwait government takes security more seriously and therefore the processing is somewhat stricter now than it used to be. They added that this problem is beyond the control of the MOH, as the issue of visas is the domain of the Ministry of Interior and the Ministry of Social Affairs and Labour. In addition, Kuwaiti laws do not permit any expatriate to buy a property in Kuwait, except nationals of the Gulf Corporation Council countries.

One of the top management at Al-Hadi hospital, who worked in the MOH for ten years, indicated that in private organisations, owners and shareholders have a direct monetary incentive to monitor and control the behaviour of managers. Likewise, managers themselves are likely to benefit from better performance, either because they own company shares or because their pay is linked to financial success. He added that public hospitals typically have few rivals for the provision of their services. Regarding the differences between public and private goals, he indicated that public managers have multiple goals imposed upon them by many stakeholders that must attempt to satisfy (MOH). However, private firms pursue a single goal

of profit. He mentioned that the goals of the public sector are vaguer than those of the private organisations. That is because organisational goals are imposed through political process rather than managers within the organisation.

Theme 2- Lack of Knowledge and Competence (Cultural¹⁷ Issues).

The following factors were considered to be cultural because they were similar to factors identified in the literature (Table 3.8), i.e. language barrier, and cultural diversity. A new factor was added, i.e., unclear responsibilities. This factor could be related to the organisational issues theme. As mentioned before these factors are not mutually exclusive.

Unclear Responsibilities due to the Language Barrier. The official language in Kuwait is Arabic. The non-Kuwaiti participants indicated that they had difficulty understanding the rules and regulations related to their jobs

¹⁷ McQueen studied (1989) the cultural influences of the British and Japanese with regard to the diffusion and user acceptance of medical information systems. The experiences of IT in health care for the two cultures were compared. McQueen characterised the NHS in UK as one of the largest employers in Europe with a complex and bureaucratic organisation. Elaborating on the British experience, McQueen pointed out some of the problems that face the introduction and development of IT: 1) difficulties in allocating monetary resources, 2) lack of strategy to orient and train the potential users to the system, 3) shortage of skilled professionals in medical informatics, and 4) lack of preparation for cultural change. In contrast, McQueen viewed the Japanese experience as a team effort to promote IT in health care setting. "It is the willingness to try out new ideas which sets the Japanese apart from we-English....Its people have open access to these facilities with very little intervention from Bureaucracy. This is the single-most important difference between the Japanese and the British systems....typically the Japanese clinician welcomes the technology and see its real value even he/she is of generation which does not want to interface directly with the tools of the new trade (McQueen, 1989).

since they are written in Arabic. They see that the overall language barrier may have an effect of accepting any new system or change. One participant said:

“I think that due to the language barrier, rules and regulation is one of the problems affecting diffusion of HIS”

They also added that, the quality of care, as it pertains to patient satisfaction, is often seriously hampered due to the language barrier.

On the other hand, participants from the private sector indicated that rules and regulations related to their jobs were written in Arabic and English. They added that managers in their hospitals ensured that rules and regulations were clearly described and employees were adequately informed thereof. One participant from the private sector, who is a clinician, said that communication among individuals and groups is vital in all organisations. Whether it is written or verbal, information sharing is the giving of specific task directions to individuals. Whereas information on organisational goals gives employees a sense of how their activities fit in to the overall picture, task communication tell them what their job duties and efforts are, as in performance appraisals. He indicated that written rules and regulations are essential to the decision-making process. He added that information and information sharing in both languages is needed to define problems, generate and evaluate alternatives, implement decisions, and control and evaluate results.

Cultural Diversity of the Organisation. Top management of the public sector said that the varying educational backgrounds and professional biases of care givers, at times leads to varying standards of documentation of medical record information. They added that the motivation of different employees is different depending on their background and their previous work experience. At times misunderstanding and misapprehensions are found among employees who have different mother tongues.

Regarding the social problems, the following were reported by the top management and end users in the public sector:

When the supervisor and the subordinates are from varying social and cultural backgrounds, at times inter-personal relations are not as good as might be desired. Therefore, social interactions are not perceived to be satisfying. Some expatriate professionals suffer from culture shock during the early stages of their stay in particular, and in certain cases during their entire stay in Kuwait. This is particularly true for employees who come from relatively westernised cultures, such as Filipinos, and some Indians who have come from the Mumbai metropolitan area. One Filipina nurse anxiously said:

“We can’t blend with other employees (Kuwaitis and non-Kuwaiti Arabs). There are cultural differences”.

They added that Kuwaitis have a cultural predisposition to being relatively more peaceful and tolerant. Further, historically, if disagreements arose between Kuwaitis, these were resolved through the institution of

“diwanyia”, where open discussions and confessions are routinely carried out and the aggrieved party normally prefers to forgive and forget. Most Kuwaiti administrators do not opt to take a “head on” approach to resolving problems. Therefore, they prefer that if a problem or a disagreement arises, it is resolved through mutual discussions.

Top management in the MOH believes that all the previously mentioned reasons affected change implementation, i.e., HIS in the public sector.

On the other hand, private sector participants believe that cultural diversity in organisation is sometimes beneficial. They believe that different cultural background could enrich their experiences. They added that diversity in workplace may include better decision making, higher creativity and innovation.

Unhealthy Competition. Most participants (technician and clerk) responded that a low community spirit among users was an obstacle to standardisation of procedures and implementation of HIS. They added that clinicians, nurses, technicians and pharmacists generally worked individually; they were cautious in discussing any issue concerning them. In the public hospital, rivalry and competition within these groups was pronounced:

“Community spirit is low when we are opposing other staff groups because we are rivals”.

Most participants stressed that low community spirit is a result of unhealthy competition. Unhealthy competition is found between Egyptian and Indian employees. For that reason, most administrators tend to assign employees from different nationalities and culture in such a way that no one nationality is in the majority in any department. Top management participants added that the unhealthy competition sometimes manifests itself to a degree that it is liable to affect the work of the Ministry adversely, and in particular, the quality of services as it pertains to the rights and needs of the recipients.

On the other hand, private sector participant, who is a clinician and medical director, believed that Al-Hadi hospital tends to hire similar employees world-wide, reducing national difference. He added that the internal climate of Al-Hadi hospital may exert a homogenising influence on the values of its members.

Low Wages. The non-Kuwaiti participant (technician) indicated that he feel discriminated against by Kuwaitis. He reported that there is a clear distinction between the wages of Kuwaitis and those of non-Kuwaitis. He also added that Kuwaiti employees are provided specific allowances such as family allowances and the dependent allowance. He said:

“Although I have better capabilities than Kuwaiti employee still they are paid more”.

He believed that such practices, discrimination between Kuwaitis and non-Kuwaitis in wages, often lead to alienation among health care workers in the MOH.

On the other hand, a private sector participant (a clerk) believes that non-Kuwaitis are paid similar to Kuwaitis. She added that salaries in Al-Hadi hospital are based on the educational qualifications, and the years of experience are accounted for in determining the base salary and this helps the expatriates.

Theme 3- Issues Related to user satisfaction (User satisfaction Issues). The following factors were considered user satisfaction issues because they were similar to factors identified in the literature (see Table 3.8), i.e., benefit realisation (relative advantage), compatibility, training and ease of use issue. A new factor was added, i.e., unclear responsibilities. This factor could also be related to the organisational theme. As mentioned before, these factors are not mutually exclusive.

Benefit Realisation (Relative Advantage). Public participants with prior expertise in working in an HIS environment agreed that using the system was supposed to allow them to accomplish their tasks much easier and in a much shorter time, improving the quality of services rendered to the patients. Managers also agreed that these are the advantages if successfully implemented. However, some end users faced problems with transferring from the old system to the new one, which increased their workload and

resulted in missing the expected advantage of the new system. Others never had the chance to use the system since it was not yet implemented in their department, and were oblivious to the reason for the delay in implementation, blaming the MOH for it.

It is worth noting that those who had the chance to use the system are medical record employees. This part of the system was used to automate the Master Patient Index (MPI). Although it was difficult to transform the old system to the new one because they had to re-enter all patient data, (which was associated with increased workload), for the patients whom MPI was entered in the new system, data retrieval was easier and more accurate, which resulted in disposing of medical record duplicates. One participant (clinician) said:

“HIS system doesn’t work perfectly with our work style at the hospital”.

On the other hand, a private sector participant (clerk) agreed that using the system, allowed her to have easy access to and navigation of the patient record compared to the paper-based record system. In addition, she believed that using HIS enhanced effectiveness of work performance, enhanced quality of care provided, improved communications among the health care team, improved documentation practice and increased productivity levels due to better access to complete, accurate information.

Compatibility. The managers believed that the system was compatible since it was used in a health care environment (i.e. the Egyptian HCDS) that is similar to the one in Kuwait. They blamed the end users' lack of enthusiasm to use a new system on their lack of experience of using computers, and saw this as a reason for failure in implementation. They proved their point by stating that all necessary training courses were provided to the expected users but not much benefit was realised. In contrast, end users' who got the chance to use the system rejected the idea of using a system developed outside Kuwait. They added that this system was not "compatible" with their work flow. One clinician said:

"The HIS system is not compatible with our work. Our work is purely clinical and now it becomes more clerical".

On the other hand, the private sector participant (clinician) agreed about the compatibility of HIS with their work needs and style. He believed that using HIS is more challenging to other private hospitals who did not adopt the system yet. He recognised that being competitive in the market means using state-of-the-art technology to provide quality health care to their patients. He admitted that using HIS might attract patients to their hospital since the waiting time is less and a flexible appointment system is provided that meets patients' preferences.

An appointment system is one of the major problems that face the public sector hospitals and causes withdrawal of patients from the public to private hospitals.

Training. The public sector participants (nurse and clerk) added that they were not given proper training to use the HIS, explaining that the training they received was not related to the specific system to be implemented and that it was more like general computer literacy courses. They felt a great gap between them and the management in the MOH. They explained their lack of enthusiasm to use the system based on the fact that neither they nor any of their representatives was involved in the development and design of the new system in order for the system to be ‘compatible’ to their needs. This is due to the fact that it forced them to change the style of work that they had been using for many years. They thought that the system should be designed based on their needs. They also added that the new system made matters worse and, therefore, it failed to yield its objectives. One participant said:

“I had one month training on using the general computer literacy courses. When they launched the HIS in my hospital I wasn’t able to use it”

The management in the public sector (i.e. at the MOH level) said that “trialability” was offered. They actually feel that this is all that they have been doing. Explaining that whenever a system was to be implemented, it was done on a pilot basis in one of the general hospitals. However, the pilot always resulted in a failure; therefore no system was ever implemented across all

hospitals and integrated among the hospitals as a final objective of the MOH plan with regard to HIS.

The end users (nurse, clerk) do not agree with the management definition of 'trialability'; they believe that once a system is piloted it means it is implemented. They explained by stating that if this was a trial basis then the end users' perspective on the problems with the system would have been taken into account. However, the MOH, as the end users added, would simply cancel the whole system and go on to plan a new one, committing the same mistakes and creating the same problems all over again, leaving the users uncertain about the new system's success. When asked to explain, one gave cautious reasons, while the other said:

"The IS people came twice for 30 minute sessions, talked about the system, but there is no training or sessions".

In the private hospital, participants agreed that they had the opportunity to trial the HIS, and then they were allowed to officially work with it. They indicated that trialability reduces uncertainty and greatly improves the rate of adoption. Therefore, organisations need to invest money and need more planning and consideration for training and experimentation. One participant (clinician who is a medical director) said:

"Yes, I was trained on the system for two months, and then the top management decided to launch it at my hospital and use it permanently".

He added that vendors were requested to submit their installation work plans. Vendor responsibility, length of installation, customer responsibility, and skill level of installation personnel were described. Vendors were asked to describe the training they provide in areas of application usage, system operations, and ongoing training.

Ease of Use Issue. Among public sector participants (clinician, nurse and clerk) who have used a system, said their chief complaint about the system was the difficulty in its use. They felt that it was complicated and required a series of menus to do a simple operation. No user manuals or support material were available to users. It was not easy to remember how to do tasks within the system, no proper training was provided, and counseling on ongoing problems during work hours was not available. One end user described how he encountered this in daily practice:

“Using the HIS system always causes frustration because we have to go through a lot to be able to work with it properly”.

Responses of participants from the private sector were not in agreement with the public sector. The management participants’ responses were enthusiastic about the idea of the HIS implementation, for there was a financial saving after implementation of the new system. In general they had the feeling that HIS implementation is a worthwhile long-term investment that will be economical in future. The end user participants found it easy to use, and it saved them time and effort, which resulted in better outputs than the old

system. The improved output formats eased communication and increased work quality.

Participants from the private sector (clinician and clerk) thought that the system was user friendly. They stressed that their participation during early stages of system planning, design and development made the system easy to understand and use. One participant (clerk) from the private hospital said that:

“No difficulties in using the system. The top management in our hospital selected it based on our needs”.

Both private and public hospital participants agreed on the need for having a user's guide. The private practitioners preferred the selection of systems that were user friendly, clear and provided easy tasks, allowing easy operations and less error.

Participants from the private sector stressed the importance of the ability to deliver highest quality health care as being of great importance to them. They also stressed the fact that their hospitals must adopt HIS, as this affects greatly their competitiveness in the health care market. A HIS will give a hospital an edge over the competitors. They added that, for example, appointments and appointment systems in the public hospitals are a major problem for the patients, which leads them in many cases to shift from public hospitals to private ones. A good computerised scheduling system that could fulfill patients' needs and preferences regarding their appointments would be a

positive contribution in the health care sector. The private participants take a great pride in their system; they believe it is the fruit of a cooperative work between decision makers and users.

The end users stress the fact that the systematic provision of information needs to aid in the process of decision making during working hours has a great effect on system success. The system ease of use is another factor. If the system was easy to use so then not much training is required to use it which makes them more satisfied with the system. These qualities if present in the system will increase the users' productivity and result in better work performance evaluation on which the reward system is based in the private sector.

Participants in the private hospital reported that they had the chance to get a good orientation, substantial training and experimentation time before they were allowed to officially work with it. They stressed again that they were involved in the system early stages of implementation, which made them more certain about the benefit of the system more desirable to use.

5.10. Validity of the Findings

A. The Moderator's Views Regarding the Public Focus Group Session

Seeking participants within the public sector who are willing to participate in the study was difficult, particularly if the study requires extensive amount of time. If a large number of the people approached decline

to participate in the study, the sample selected tends to be limited in ways that might not be evident at first glance. In this case, generalising the findings to all members of a population (stakeholders) is not easy to justify.

The intention of the researcher and the moderator was to keep sampling and analysing data until nothing new was being generated. This is called 'Saturation'. However, in a number of areas and for a number of reasons the point of 'Saturation' was not reached. Firstly, some organisations welcome studies and encourage researchers to conduct studies, whilst others are resistant to the conduct of research. These two types of organisations may be different in important ways; thus, there might be an interaction of setting, which in turn limits the generalisability of the findings. Secondly, some participants (non-Kuwaiti) gave a simple or vague answer due to the presence of other members (such as top management). Thirdly, some participants (such as top management) are more likely than other participants (such as technicians and clerks) to give 'official' accounts in the focus group session. Finally, although the moderator was careful not to influence the stakeholders' responses, their knowledge of the study's aims and hypotheses could nevertheless influence their behaviour. This creates a potential threat to the validity or accuracy of the study.

Although informal discussions were used to supplement the findings of the focus group, the moderator nevertheless felt that the researcher should pursue other methods for data collection.

B. The Researcher's Views Regarding the Private Focus Group Session

Selecting a qualitative sample was only the beginning of the researcher's problems. As mentioned before, the researcher decided to seek subjects with particular characteristics in order to increase understanding of certain facets of the phenomenon being studied. The researcher acknowledges that having two participants in the focus group might be considered problematic, but the reasons for having two participants in the private hospital were that few available people fitted the sample criteria and many of those who were approached refused to participate in the study. Appropriate subjects, who were numerous a month previously, seemed to have disappeared. Many stakeholders (20 participants) refused to participate in the study due to the following:

- A number of participants were unwilling to participate due to reasons such as: no interest, engaged in busy schedules, and no phone answered.
- Numerous subjects failed to be contacted, mainly due to not being found, unknown address, or wrong email address.

This lack of participation might be due to exposure to frequent studies, a feeling of being manipulated, or misunderstanding of the research aim. Participants may have felt that they were being used or were afraid that they would be harmed. The result of these difficulties was that the sample criteria had to be re-evaluated and additional sources for potential subjects were

sought. However, organisational procedures had changed due to a new director, which resulted in many potential subjects becoming ineligible for participation in the study. As with the public sector focus group, it would be fair to conclude that the point of 'Saturation' has not been reached.

Since a large amount of information was needed from respondents, face-to-face interviews were planned. These interviews were used to explore stakeholders' perceptions of the factors affecting the successful implementation of HIS in Kuwait's HCDS.

5.11 Summary

The purpose of this study was to identify the perceptions of HIS by diverse professionals (stakeholders) at two different sites where HIS has been implemented and to identify differences between public and private experiences. The results revealed significant differences between public and private sector perceptions. The approach used in data analysis resulted in concluding that HIS implementation is a multidimensional process that involves many forces. For this process to be successful such forces must be carefully considered. These forces are listed in table 5.1. It can be noted that participants' views were found to be in agreement with findings of previous studies.

In short, all of the previous forces are perceived as driving or restraining, or contributing to system success or failure. Therefore, to ensure system success, such drivers should be considered. The observations resulted

from the focus group sessions widened the researcher's vision of the topics under study. The intention of the researcher and the moderator was to keep sampling and analysing data until nothing new is being generated. This point is called 'Saturation'. However, the point of 'Saturation' hasn't happened.

The researcher felt the need to pursue other method of data collection due to the following issues:

1. The focus group measurement can be biased in the people (participants) from whom the researcher obtained their measures because some participants (top management) being more likely than other participants giving 'official' accounts in the focus group session.
2. The sample size of focus groups tends to be small.
3. The researcher's and data collectors' skill in using a particular data collection technique can affect the quality of data collected.

The researcher thought that the problem investigated was complex and required in-depth study from a variety of perspectives to capture reality and to validate findings from the literature review and focus group. The focus group findings were used to formulate an interview to further investigate the research questions and seek answers.

Table 5.1: The Three Themes of HIS Implementation Process and the Factors that could be Driving or Restraining Forces*

Organisational		Cultural		User satisfaction
Insufficient planning	Uncertainty	Unclear responsibilities due to language barrier	Benefit realisation (Relative advantage)	
End user involvement		Cultural diversity of the organisation	Compatibility	
Increased workload		Unhealthy competition	Training	
		Low wages and alienation	Ease of use issue	
	Top management commitment			
Resistance to change due to professional pride				
Lack of experience				
No system of sanctions or rewards				
Lack of IT specialist and competition				

*** Based on the focus groups**

CHAPTER SIX

QUALITATIVE STAGE

STAGE TWO: (INTERVIEWS)

6.1 Overview

The interviews were used to build on what was learned in the focus groups. Many qualitative studies combine focus groups with interviews. This is because the researcher wants to develop and build towards a more sophisticated understanding.

Two methodological reasons for the less frequent use of interviews have been problems with objectivity that decrease reliability (Yin, 1994), and the man-hours required to complete interviews, which, compared with questionnaires, makes interviews extremely costly (Silverman, 2000).

On the other hand, interviews have many potential advantages. For example, the meanings of responses can be explored, contradictions can be explained and corrected, individuals with poor self-insight can be assessed more accurately, and interpretations of meanings can be corrected. Furthermore, interviews allow more 'in-depth probing'. This is carried out by using question-asking techniques that are best suited to each individual in relation to their knowledge, degree of education, and perspectives.

The most common tool is the open-ended interview, in which the researcher can ask key respondents for the specific facts of a matter, as well as for the respondents' opinions about events (Yin, 1994).

In this study the interviews were semi-structured in nature. Robinson et al (1987:55) described the semi-structured interview as the 'middle road' between unstructured and structured interviews. They stated that the semi-structured interview:

“Contains a core of structured questions from which the interviewer may move in related directions for in-depth probing. This allows accurate information on certain questions with a built-in opportunity for exploration”.

This was felt to be the most appropriate style for this part of the study.

The semi-structured interviews involved lists of topics about which the interviews sought information. These topics were developed on the basis of the theoretical interest of the study and the related findings of the literature review and the focus group results. The questions tended to be fairly general and were designed to allow the respondent to develop his/her ideas and views fully, with minimal guidance from the interviewer.

First, some background and demographic information about the interviewees was asked for. Then the interviewees' perceptions regarding factors that affect successful HIS implementation was sought. Finally, the interviewees were asked to state if there were any other factors that they thought might affect successful implementation of HIS as it relates to Kuwait.

6.2 Sampling Method

“In qualitative research, participants are carefully selected for inclusion, based on the possibility that each participant will expand the variability of the sample” (Maykut, 1994:156).

In qualitative studies, samples are usually not totally predetermined, but can develop during fieldwork. Initial choices of informants lead you to similar and different ones; observing one class of events invites comparison with another; and understanding one key relationship in setting reveals facets to be studied in others. The course of events leads the way and initiates the need to compare and study key relations. Also the information one gets at the beginning from the sources leads to the active pursuit of similar sources or their avoidance. In this study, key informants were identified in the context of the researcher’s participation in the focus group stage (Section 5.2).

The researcher conducted purposive sampling, where people who are useful to the study were interviewed.

As mentioned in section 4.2, criteria for informants’ selection included those who were involved with the decision of HIS implementation, top management in MOH, and top management and end users in Al-Amiri and Al-Mowasat hospital. The end users included clinicians, pharmacists, nurses, technicians and clerks.

To select the stakeholders (Section 5.1), the organisational charts of the MOH (Figure 2.2), Al-Amiri Hospital (Figure 2.3) and Al-Mowasat

Hospital (Figure 2.4) were examined. If any position was held by only one person, that person was selected and contacted as a candidate for the interview, or were asked to suggest alternative candidates if they were available themselves. For positions held by more than one person, a random choice was made to select one person for the interview.

The MOH and different hospitals on the Kuwaiti HCDS 2002 membership directories were used for that matter. As the study progressed the identified primary stakeholders were approached, and they recommended more stakeholders until sufficient ones were found. Thirty-four stakeholders were approached to take part in the study, and 18 agreed to participate. Sixteen refused to participate in the study because they were not interested or were too busy. While others could not be contacted because their address was not known, the e-mail address was wrong or they did not answer the telephone.

The population for the interviews covered stakeholders in the MOH itself (see Section 2.3.2), one MOH hospital and one private hospital.

6.3 Setting

As mentioned before 18 stakeholders were interviewed, 12 from MOH itself and MOH hospital, the Al-Amiri hospital which was selected because it had experienced a HIS implementation (see Section 2.3.2). There were another six stakeholders from Al -Mowasat hospital, a private hospital with a currently functioning HIS.

6.4 Interviewers

One independent interviewer, a male aged 26 years, was employed by the researcher as interviewer for the public sector, while the researcher was the interviewer for the private sector. The interviewer carried out 12 interviews within the public sector, while the researcher carried out 6 interviews within the private sector. The interviewer was interviewed by the researcher to assess his English and Arabic fluency and the level of comfort when talking to the participants. The interviewer and the researcher were trained for three days by two university professors in Kuwait with expertise in conducting interviews. The interviewer and the researcher collected data.

6.5 Data collection

The interviews for the study were carried out between December 2002 and August 2003. At the beginning of each interview the interviewer and the researcher introduced themselves and explained the purpose of the study. The interviewees were provided with the study protocol and ethical committee approval prior to the meeting (Appendix 5) Each interviewee signed a written informed consent form, in which anonymity and confidentiality was assured and the right to withdraw from the study or refuse to answer specific questions was specified.

The plan was for the interviews to be audio taped. Therefore, the consent of each participant was taken before taping the interview. However, in

the case of participants who did not consent to taping the interview, their permission was sought to take notes instead. In recording interviews, tape recorders can be a useful device. However, Yin (1994:86) stressed that a tape recorder should not be used when:

“(A) An interviewee refuses permission or appears uncomfortable in its presence; (B) There is no specific plan for transcribing or systematically listening to the contents of the tapes; (C) The investigator is clumsy with mechanical devices so that the tape recorder creates a distraction during the interview itself”.

The dialogue of the audiotapes and the notes were transcribed to enable data analysis. The interviews were conducted in Arabic since some interviewees were not able to speak English. No translation was required, therefore, consistency was promoted and data analysis was made easier.

6.6 Data analysis

The interviewers transcribed their own field notes from their handwritten notes. Transcripts of interviews were produced from audiotapes by a transcriber with qualitative methods experience. Lacey et al (2001:13) observed that:

“Qualitative researchers frequently feed back the findings from their research to their participants in some way”.

Also, many funders and reviewers consider ‘respondent validation’ of qualitative research to be mark of quality, and evidence of respondent

validation of findings is increasingly seen as a way of demonstrating rigour. The range of feedback to respondents can vary. Transcripts (quotations) were sent back to participants to check accuracy. The same data analysis in five stages was used, i.e., framework approach, as was done in the case of the focus group data analysis, (Section 5.7).

6.7 Interview findings

A: Interviewees' demographics and general information. Thirty-four stakeholders were approached to take part in the study, 18 agreed to participate. There were twelve from the public sector (three directors from the MOH, two directors from Al-Amiri hospital, two clinicians, one nurse, one technician, one pharmacist, one IT specialist and one clerk). There were six stakeholders from the private sector (two directors, one clinician, one IT specialist, one technician, and one clerk). The state of saturation (no new concepts) was reached by the eighteenth interview.

Interviewees from the public sector worked at the MOH and Al-Amiri hospital. They had experience working with HIS. Eight of the participants were males and four were females. Their ages ranged from 35 to 65 years. The sample was composed of a mixture of Kuwaitis and non-Kuwaitis.

Most of the interviewees had either high school level or a baccalaureate degree. The duration of experience working in the Kuwait health care delivery system varied from 1 year to more than 30 years.

The interviewees from the private sector were predominantly males, with only one female. Their ages ranged from 30 to 50 years. The sample included Kuwaitis, non- Kuwaiti Arabs and non-Arabs. The minimum educational of the participants was high school level. The higher was a graduate degree. The minimum experience was 2 years, while some others had experience of more than 35 years in the health sector in Kuwait in both public and private sectors. They all had experience dealing with HIS for a minimum of 4 months and a maximum of 4 years in a private hospital.

B: Factors affecting the successful implementation of HIS as seen by the interviewees. Studying the factors that influence the implementation of HIS in Kuwait HCDS is an important objective of the current study. The researcher was interested in identifying additional factors that the stakeholders may suggest for the successful implementation of HIS in the Kuwait HCDS.

The opinions of all interviewees were recorded regarding the implementation of HIS and the factors that may led to its success, both in the private and public sectors. The interviews were planned to include as many factors as possible based on the interviewees' responses (Appendix 6). The following responses were collected.

Theme 1 – Organisational Issues. The following factors were mentioned as organisational issues affecting the successful implementation of HIS: planning, communication, management innovation support, and

decision-making process. It is worth noting that some of these factors are not mutually exclusive, but are sometimes interrelated.

Insufficient Planning, Formation of Implementation Team and Lack of resources. There was consensus among participants that successful implementation of HIS might be affected by improper planning. A realistic management plan prepared by informed decision-makers at MOH is essential to a successful implementation. They believed that a priority for a strategic plan should be its ability to cope with the technological infrastructure for the system. An end user said:

“I think the implementation of HIS was not based on clearly defined plans”.

Moreover, participants emphasised the importance of the technology team and that the preparation plan should be outlined especially to handle the technological infrastructure of the system. Participants agreed that the MOH did not have a strategic plan that is aligned with the organisation’s visions and goals. In addition, participants stated that there was no steering committee assigned to oversee the project plan.

Participants mentioned the importance of sharing the opinions and points of view of different levels of the team, when preparing the plan, so that user-input can be used as a coherent steering force to create a solid basis for organisational transformation. They also believed that a “feasibility study” must be performed to identify the full picture of the information system

implementation and to make recommendations on the schedule and stages of the proposed implementation plan.

Another user (technician) said:

“Such a huge project needs support from the top management in the MOH and a powerful team to lead the implementation process”.

On the other hand, top management at the MOH indicated that sufficient resources are crucial in implementing IT innovation. End user participants stressed that the lack of resources had affected the system success. Top management participants added that adopting HIS requires long term commitment and financial support from the government.

Participants from the private sector indicated that clear strategic plans are essential. They added that a technology team is very important and a preparation plan should be outlined in order to implement HIS successfully.

Uncertainty and Lack of Communication. Participants from the public hospital emphasised that the fundamental factor that affected the successful implementation of HIS was uncertainty about HIS benefits due to lack of information. Some mentioned that an important factor is that the information flow for decision making within the MOH, regarding IT innovation, allows only those at the top of the pyramid to have enough information to make an informed decision.

They all agreed that insufficient information was given to them regarding the HIS, concepts, advantages, disadvantages and implications of using such a system. It was perceived by end users that decision-makers and top management at MOH did not have adequate information regarding the HIS; therefore, they failed to communicate adequate information to them. This included orientation about the merits of HIS and the reflections on the jobs at hand for each part of the team. In addition, end users were uncertain about their role within the system. Moreover, users were not confident that they could cope with high-tech systems like HIS, and they were not sure that they could meet the objectives. An IT specialist said that:

“I believe that the decision-makers at the MOH did not have sufficient information regarding HIS, I think they are not clearly certain about the advantages of the system”.

On the other hand, one participant from the private sector indicated that top management communicated adequate information on the benefits of adopting the system. This level of communication means the top managers in the private sector had a clearer picture of the situation in their organisation.

Resistance to Change, Top Management Computer Literacy and Lack of Support from the Management. One other extremely important factor that was pointed out by the participants is the lack of support by management at MOH. This factor had an effect on the spread of use of HIS among Kuwait HCDS. Participants described the top management at the

MOH as being from the 'old school' meaning older graduates and not strong believers in modern technology, who were resistant to change in general and to changing the way they perform their job in particular.

End users are accustomed to the way they do their job. They also have busy schedules that are overloaded with patients. Trying to introduce a new system at the same time will add to the burden of the job and will increase anxiety and stress.

The system was also viewed as a threat to many of the system users among the top management, as they are computer illiterate. One clinician said:

"Decision-makers are not well prepared when it comes to understanding the benefits of HIS; I think they are computer illiterate".

Lack of management support for implementation of HIS was also expressed by lack of resources provided to users. Resources included information, materials, IT manpower and technical support. There was lack of information provided to users, as well as, materials including equipment, expertise in IT field, and technical support for the system.

One participant (nurse), although others have suggested similar thoughts (IT specialist and clerk), said that:

"Users were not familiar with the benefits of using the HIS system because the Ministry did not pass enough information, or they do not have enough information, or maybe they do not have enough information about the

product. Therefore, uncertainty and resistance to change are factors affecting diffusion of the system in Kuwait”.

On the other hand, one participant from the private sector (top management) believed that management support and the quality of communication between top management and users are very important in order to successfully implement HIS. He added that lack of support for any change initiatives from the top management causes resistance to change.

Lack of Financial Support from the Government and Bureaucracy. Participants (clinician, nurse and clerk) believe that an inadequate budget is one of the main factors affecting diffusion of HIS in Kuwaiti HCDS. They relate that to the fact that implementing such a system needs long-term commitment. In addition, the MOH had a different set of priorities that needed to be performed before becoming involved with HIS. For example, most efforts were directed after the invasion toward renovating and building new hospitals and health care facilities. One of the participants (clinician) said:

“Implementing the HIS costs a lot of money and it needs long-term commitment; as you know, Kuwait, financially is not like before the invasion”.

Other participants (top management and IT specialist) said that since HIS involves many organisations and ministries, not only health-related but also non-health related, there is a need for a political decision from the government and not only from MOH. A decision maker said:

“It needs a decision supported by the government, not only the MOH; it needs a political decision”.

Another (decision maker) said:

“Lack of budget to support the HIS is one of the main problems that the Ministry is working to solve with the government”.

The decision maker from the MOH said that organisations in the public sector have more formal procedures for decision making, and are less flexible and more "risk-averse" than the private sector. He added these characteristics of public organisations reflect the lack of rewards or incentives for successful innovation and the penalties for violation of established procedures. As Boyne (2002:97) said:

“Bureaucratic structures may also stem from the requirements of monitoring bodies and from demands for accountability in the public sector”.

A participant from the private sector (clinician) said that the hospital management has a vision and, in order to accomplish this vision, budget is not an issue. He said that the hospital management believe that such projects, i.e. HIS implementation, sometimes exceed the planned budget. He added that the support of the top management is essential to the success of such projects.

Organisational Stability and Conflict¹⁸ of Interest. Participants from the public sector (clinician and IT specialist) believed that implementing such a system needs long-term commitment. In addition, the MOH had a different set of priorities that needed to be performed before becoming involved in IT projects. They also believed that the unstable environment in the MOH during the past 10 years, because of the appointment of five health Ministers during that time, had a negative effect on the decision-making process. Each of the Ministers had different priorities that they wanted to accomplish. Therefore, they tended to postpone previous projects. This added more pressure and confusion on decision-makers, thus affecting the decision making process. While, one participant (clinician) said:

“There is conflict of interest between different parties within the public sector (MOH and public hospitals) that caused system failure”.

He added that one cause of stress in organisations is conflict. He added that in particular, conflict frequently occurs when a person or a group believes that its attempts to achieve its goal are being blocked by another person or group.

One participant from the private sector (top management) indicated that the unstable environment had a negative effect on the decision-making process in the public sector. He mentioned that public sector Ministers have

¹⁸ In its simplest form, conflict is disagreement among parties. When two persons or groups disagree over major issues, conflict is often the result (AbdelHak et al., 1996).

different priorities and agenda. He added that the plans and visions of the private hospital are fixed even with the appointment of a new director unlike the public sector. He said:

“Al- Mowasat hospital has had 10 medical directors during the last 20 years; the unstable environment never affected the hospital vision”.

Lack of User Involvement. It was illustrated that the involvement of users in HIS development and implementation is an essential factor for a successful outcome. The system design should be based on users’ true needs. This will lead to more involvement with the system, better acceptance and interaction. The importance of customising a system based on the needs of users was initially discussed by Rogers (1983) and referred to as re-invention. Although Rogers (1983) did specify it as one of the diffusion attributes, he did not include it as one of the five main attributes.

Participants (clinician, IT specialist, and clerk) who dealt with a ready-made system (Egyptian system, see chapter two) had problems with accepting the system, getting involved with the system and even operating the system properly. There were also many technical problems faced. They believed that many problems could have been avoided if they had been involved in the different steps of development of the system. They should have been involved in the analysis, preparation, development and implementation of the system. One said:

“I think users should be involved in all plans regarding HIS system in order to increase the diffusion of the system”.

The clinician stressed the need to involve users in different stages of system adoption. He added that if the system were customised based on the users' needs, it would be more acceptable to them.

A private sector clinician said that the system was customised based on the users' needs. He believed that users' involvement has long been considered a key variable in the successful development of HIS.

Lack of Effective Leadership. Participants from the public sector (clinician, technician, and clerk) indicated that the MOH and Al-Amiri hospital lack effective leadership. They said that management should be concerned with ensuring that goals are clearly defined, that resources are structured in a way that helps accomplish goals, and that systems are in place to ensure that deviations from desired performance are brought back into conformance with goals. The result of effective management is order, predictability of systems, and efficiency. They added that management is about doing things the right way. But leadership is something different. Leadership is about setting direction and providing a vision or hope for the future. It is about aligning groups toward the accomplishment of common goals, and it is about motivation. One participant (clerk) said:

“Effective leadership is very important for any change intervention. To be honest with you, workers in the medical department are passive, if not

resistant to, applying their energies toward something not supported by the top management in MOH or in the hospital".

Another (clinician) said:

"Employees react in this way because they are inherently lazy, indifferent, self absorbed, not very bright, resistant to change, and likely to shirk responsibility and avoid risks".

Top management participants admit that they lack effective leadership. They blamed the ministry policies and regulations. They added that there are fixed rules meaning that they could not end Kuwaitis' employment based on their poor performance; also they could not reward employees for their outstanding work.

One participant from the top management at MOH said:

"To overcome this ongoing resistance, management must apply the carrot and stick method to elicit employees' compliance and effort. Management must use control techniques, coercion, punishment, bribes, promises, monetary incentives, and cajoling to ensure productivity".

They said that effective leadership is crucial to the long term viability of HIS implementation. They added that no educational program alone can guarantee the development of effective leadership. They acknowledged that the leadership role is one of facilitating the organisation's ongoing process of accommodating to and catalysing environmental change, and that effective

leaders articulate a vision of the organisation's future and model the values, priorities, and behaviours consistent with achieving that future.

In the private sector, participants' (top management, clinician and technician) attitudes were similar about the role of leadership in successful HIS implementation. They believed that because of their management and effective leadership the systems were implemented successfully. They added that leadership is arguably the single most important factor that influences organisational effectiveness. They emphasised that leadership is essentially a rational process that involve social, political, and cultural aspects of behaviour rather than being a reliable set of personal characteristics. A leader understands their organisational culture and fits within an ever changing and increasingly complex environment and that is the situation in Al-Mowasat hospital. One participant said:

“We had lots of problems during HIS implementation, but because of effective leadership style we overcame all of these problems”.

Theme 2- Cultural Issues. Organisational culture includes the following factors: organisational diversity, language barrier, accountability, and incentives. As mentioned before, some of these factors are not mutually exclusive and they are sometimes interrelated. For example, accountability and incentives could be organisational issues.

Diversity of the Work place. Participants from the public sector stressed that this is a serious problem in the Kuwaiti system, which relies heavily on expatriates. They think that diversity in the workplace has the potential to create conflict in an organisation. Issues raised such as communication difficulties include language and literacy. In addition, the diversified background of expatriate employees contributed to poor internal and external communication. Moreover, non-Kuwaitis or expatriate workers in the public sector complain about not fully understanding their roles and responsibilities. Discussion between different work groups occurred frequently concerning uncertainty as to responsibility for their work place. Non-Kuwaitis described this as a significant problem. Although some participants regarded collaboration as frictionless, both Kuwaiti and non-Kuwaiti participants felt de-motivated by these discussions. One participant said:

“If we (Kuwaitis and non-Kuwaitis) could collaborate, I think all problems we are facing with HIS implementation would be of no particular importance”.

The non-Kuwaitis expressed the view that they were particularly inconvenienced by unclear roles and responsibilities.

On the other hand, participants (director, clinician, IT specialist, and clerk) who are non-Kuwaitis indicated that Al-Mowasat hospital is a multicultural hospital. They added that they have a healthy environment in

which peer group members are often sufficient to satisfy the individual's social needs. Kuwait, as observed earlier, does not offer many social activities for foreigners. Therefore, collegiality, it is believed by the private hospital participants, offers compensation for lack of socialisation which many, if not most, non-Kuwaitis face.

Unclear Responsibilities, Policies and Procedures due to Language Barrier. Non-Kuwaiti participants stressed that the official language in Kuwait is Arabic. Asian employees are not conversant with the Arabic language. Therefore, mainly because of the language barrier, the policies are not known to them. In the absence of adequate knowledge of policies and procedures, there is a higher probability of exploitation by the managers. They also added that since most of the supervisory positions are with non-Kuwaiti Arabs, particularly Egyptians, there is a tendency on the part of some supervisors not to provide full information about policies and procedures to employees, mainly because information is viewed by them as 'power' and they prefer not to share the information with others. One (Indian) non-Kuwaiti participant said:

"I think all problems we are facing with any change implementation would be of no particular importance if we understand our roles and responsibilities".

The researcher, based on the insight gained through the interviews, has come to realise that employees who have knowledge of policies and

procedures stand a lesser chance of being exploited. Like some other factors, lack of knowledge of policies and procedures leads to employees' dissatisfaction and therefore affects HIS successful implementation.

Also one participant from the public hospital (an Indian technician) said that it was disappointing for him to find that the management and administrative systems are quite unrefined in relation to ensuring that staff are adequately prepared for their role. He added that non-Kuwaiti end users (especially Indians) were unfamiliar with the training session timetables. He stressed that this lack of knowledge due to the language barrier had affected the system success. Also the instruction on how to use the system was all written in Arabic.

On the other hand, one participant (technician) from the private sector indicated that employees in his organisation have knowledge of the departmental policies since these policies are written in Arabic and English. He also added that job descriptions do exist and are reviewed yearly to see whether they meet the technical standards. In addition, the system manual was written in several languages to facilitate the system usage.

Laid Down Rules and Procedures (Accountability¹⁹). Participants mentioned that the MOH has clearly laid down rules and procedures regarding work performance. They said that, in Kuwait, expatriate employees' performance should be evaluated and those found to be outstanding workers should be provided incentives and longer contracts. On the other hand, inefficient employees should not be retained in the system and their services should be terminated.

MOH managers added that incompetence was found among Kuwaiti staff as well. Therefore, they think it is beneficial if Kuwaiti staff are made accountable and answerable. At the present time, there are no rewards for outstanding workers, just as there are no punishments for poor performers. A decision maker at the MOH expressed his opinion saying:

“The MOH should, in the long run, institute a system where outstanding performers are rewarded and the poor performers are punished whether Kuwaitis or non-Kuwaitis”.

¹⁹Accountability “to be answerable for the results of an assigned action. Accountability is associated with delegated authority and is distinct from responsibility. A supervisor can assign responsibility but cannot give away his/her accountability; the manager is ultimately accountable”.

On the other hand, AbdulHak et al (1996:410) defined accountability as “the responsibility or liability a manager assumes for the stewardship of the authority that the organisation grants to a particular position. The director is accountable to the board of directors for the authority granted to that position. There is always accountability in proportion to one's authority.

Decision makers or "opinion leaders" at the MOH believe that the existing system does not help any change intervention. They think that employees resist changing their work style since they are not rewarded for outstanding work or held accountable for the poor performers.

On the other hand, a private sector participant (a non-Kuwaiti clerk) said that if incompetence was found in Al-Mowasat hospital, whether they are Kuwaitis or non-Kuwaitis, they are made accountable and answerable for poor performance and are rewarded for outstanding work.

Theme 3 -User Satisfaction Issues. User satisfaction issues mentioned by participants included lack of personnel in the IT field and system quality.

Lack of IT Manpower. There was a consensus among the participants regarding the lack of IT manpower. They rated this factor as one of the very important factors in the successful adoption of HIS in Kuwait HCDS. The end users (clinician, nurse, IT specialist and clerk) also stressed that there is not an adequate number of IT professionals to carry the burden for the smooth introduction of HIS among health facilities. Furthermore, IT professionals are not specialised in hospital environments or health fields. The IT team role is vital to the job that includes site preparation and training as well as maintenance and support for the system. They also added that bringing in expertise from abroad would be very costly. One (IT specialist) said:

“The ministry had shortage of resources; a budget should be allocated separately from the MOH to support the project by providing IT personnel”.

While the private sector participants (medical director and clinician) indicated that IT specialists are very important for system success they indicated that IT specialists can offer training programs. They believed that a sound training program assures employee involvement, growth, and competency through the changing needs of the future environment.

System Quality (Ease of use, Confidentiality, Timeliness, Content, and Format). Participants from the public and private sectors agreed that user satisfaction with HIS is one of the most important determinants of the system success. Public sector participants were not satisfied because of difficulties in operating the system. They refer to the system as too complicated with too many menus to do simple tasks. In addition, the system was not supported with a users’ guide to facilitate the operating process, and that it takes a long time to operate it. Therefore, it was difficult to remember how to perform tasks within the system.

However, participants from the private sector (clinician and clerk) believed that their system was friendly to use, easy to perform data entry, and flexible to shift from one screen to another. They also added that a user’s guide supplied by the system developers added great value in supporting the use of the system. The guide included a step by step procedure on how to perform data entry within each screen and how to move smoothly from one

folder to another. The system was supported with reports and statistics that physicians can request with a click of the mouse. The participants thought that their involvement in system development was crucial to the ease of usage and their acceptance of the system. They added that, if a technology is perceived as being too complex, end users will be less likely to try it and accept it and be satisfied. Therefore, user's involvement in the different phases of the system development is essential. One said:

"The system is easy to work with; minimal data entry definitely made it easy to work with the system".

Another said:

"It was easy to use the system and also the availability of IS coordinator all the time is an advantage".

Participants from the public sector (clinician, nurse and clerk) said that the system was not easy to use. They added that confidentiality and security have been a continuous topic in the hospital. Patients have a right to have the confidentiality of their personal health information safeguard. They insisted that professional, regulatory, and organisational foundations for maintaining patient confidentiality and data security must be reinforced. Institutional approaches to systems development and implementation will need to include appropriate strategies to maintain staff awareness of privacy requirements.

The private sector participants (technician, nurse and clerk) said that standards in confidentiality and data security have been developed based on

recommendations from the top management and based on the end users' needs. To achieve that end goal users were provided appropriate access, and use recognised data security measures.

The public participants (non-Kuwaiti technician) said that the accuracy of data depends on the manual or computer information system design for collecting, recording, sorting, processing, accessing, and displaying data, as well as the ability and follow through of the people involved in each phase of these activities. He added that it was crucial to ensure the accuracy and timeliness of documentation at point of care, to monitor its output, and to take appropriate corrective actions when needed. He said the system in the public sector was the opposite.

6.8 Summary

The study aimed at identifying and describing the factors that may affect the success of HIS implementation in Kuwait's health care delivery system as perceived by the concerned stakeholders in both the private and public sectors. The purpose of the design is to set up a situation that maximises the possibilities of obtaining accurate answers to questions, or hypotheses. The design selected needs to be appropriate to the purpose of the study, feasible given realistic constraints, and effective in reducing threats to validity.

The choice of in depth interviews rather than a cross sectional survey may be justified by the detailed data collected. Interviews are more suitable

than quantitative methods when the aim is to study the complex phenomena of organisational and interpersonal issues (Pope et al., 1999). Anderson (1989:17) said:

“Information which cannot be reached by other research methods on concealed and taboo subjects within an organisation may be unveiled by interview”.

He added:

“The method is flexible and allows the investigator to follow up the individual way in which respondents interpret and answer”.

The qualitative design enabled an understanding of contextual issues influencing HIS implementation that would not have been uncovered using quantitative methods. The results support the argument that HIS implementation must go beyond the technical systems to encompass a focus on organisation and cultural change.

Eighteen stakeholders were interviewed, twelve from the public sector and six from the private sector. The state of ‘Saturation’ (no new concepts) was reached by the eighteenth interview. The method produces an increased understanding of a small number of stakeholders but reduces external validity and generalisability (Patton, 1990). To increase the study validity participants were included from two different settings by a guided sampling approach (purposive sampling). Steps were taken throughout the entire study to increase validity by using explicit analysis approach, independent data collectors and informants’ confirmation.

The literature review (Chapter Three) stressed that HIS implementation is a multidimensional process that involves many factors under each theme. Three themes emerged. Table 3.8 shows these themes and the corresponding factors. Based on the thematic analysis of the focus groups, new factors were added (Table 5.1). The findings of this stage of the study were the basis on which the interviews were developed [to build on what was learned in the focus group] (Table 6.1). Table 6.1 shows that in this stage (interviews) new factors were added to table 5.1(focus group) those were; Confidentiality, Timeliness, Content, Format and Accuracy.

The next stage, which involves a questionnaire, is detailed in the next chapter.

Table 6.1: The Three Themes of HIS Implementation Process and the Factors that could be Driving or Restraining Forces (* Based on the Interviews)

Organisational	Cultural	User satisfaction
Formation of technology team	Unclear responsibilities due to language barrier	* Confidentiality
Uncertainty	Cultural diversity of the organisation	* Timeliness
Lack of Communication	Unhealthy competition	* Content
Resistance to change due to professional pride	Low wages and alienation	* Format
Resources allocation		* Accuracy
Top management computer literacy		Ease of use issue
Lack of support from the management		Benefit realisation (Relative advantage)
Bureaucracy		Compatibility
Organisational stability		Training
Conflict of interest		
End users involvement		
Increased workload		
Lack of effective leadership		
Top management commitment		
Lack of IT manpower		
Incentives		
Lack of IT specialist		
Competition		

CHAPTER SEVEN
QUANTITATIVE STAGE
STAGE THREE: (QUESTIONNAIRES)

7.1 Overview

The study has now progressed through three stages: literature review, focus group, and interviews. These have generated a great deal of informative material themes to understand barriers to HIS implementation (see Table 6.1). It is now necessary to validate these themes (that have emerged from the qualitative stage) with a larger sample to test the findings in a systemic fashion.

A questionnaire is a printed self-report form designed to elicit information that can be obtained through questionnaires is similar to that obtained by interview, but the questions tend to have less depth. The subject is unable to elaborate on responses or ask for clarification of questions, and the data collector cannot use probe strategies. However, questions are presented in a consistent manner, and there is less opportunity for bias than in the interviews.

Questionnaires can be designed to determine facts about the subject; facts about events or situations known by the subject; or beliefs, attitudes, opinions, levels of knowledge, or intentions of the subject. They can be either

to very large samples, either directly or through the mail. The development and administration of questionnaires has been the topic of many excellent books focusing on survey techniques that were helpful in the process of designing the questionnaire (Berdie et al., 1986; Converse et al., 1986; Fox et al., 1986; Kahn et al., 1957; Sudman et al., 1982). Although questions on a questionnaire appear easy to design, the well-designed item requires considerable effort. The use of questionnaires is by far the most popular technique in social science research, whether used alone or in conjunction with other data collection methods (Black et al., 1976).

Like interviews, questionnaires can have varying degrees of structure. Some questionnaires ask open-ended questions, which require written responses from the subject. Others avoid open-ended questions, by presenting the respondent with options selected by the researcher.

Despite these advantages, the use of questionnaires of any kind to measure attitudes is a practice inevitably prone to some limitations that deserve consideration. Gruneberg (1979) explains, for example, that it is well established that people often give socially acceptable rather than real responses to questions; that they often expend little time and effort in filling in questionnaires; and that they are often influenced by the way the questions are phrased. Sometimes, the questionnaire can function as an instrument which provides answers suggested by the researcher rather than the interpretive

viewpoints of respondents. Furthermore, Sarantakos (1993:159) mentions another limitation which is that:

“The identity of the respondent and the conditions under which the questionnaire was answered are not known”.

Therefore, researchers are not always sure whether the right person has answered the questions. Finally, questionnaires do not provide an opportunity to collect additional information while they are being completed. There is no researcher present, for instance, to make observations while the questions are being answered.

Like interviews, questionnaires can have varying degrees of structure. Some questionnaires ask open-ended questions, which require written responses from the subject. Others asked open-ended questions, which have options selected by the researcher.

Despite these advantages, the use of questionnaires of any kind to measure attitudes is a practice inevitably prone to some limitations that deserve consideration. Gruneberg (1979) explains, for example, that it is well established that people often give socially acceptable rather than real responses to questions; that they often expend little time and effort in filling in questionnaires; and that they are often influenced by the way the questions are phrased. Sometimes, the questionnaire can function as an instrument which provides answers suggested by the researcher rather than the interpretive viewpoints of respondents.

Although several research studies have been carried out in Kuwaiti hospitals in which researchers used questionnaires as a method of collecting

data, many studies showed a low response rate. The reason for the low response rate is probably related to cultural issues. These cultural issues are related to a widespread popular belief that such studies are not important for identifying problems: generally, people believe that questionnaires are a waste of time.

In order to overcome some of the disadvantages associated with questionnaires, and the cultural issues related to the low response rate, the researcher did the following:

- A covering letter stressed the confidentiality of information obtained, and that the employees' names would not be identified anywhere in the report. The participants were also made aware of the importance of this study for identifying the problems being faced by Kuwaiti hospitals, and thereby improving the health care services. Participant lists (participants' names and phone numbers) were assigned with a unique username and password to assure users of confidentiality when collecting data.
- The questionnaire was handed to the employee by the researcher or one of her assistants. The researcher made sure that participants completed the questionnaires in her presence (face to face). In addition, during the process of distributing the questionnaires, the researcher and her assistants were available for three to five days in each selected setting, before moving to another location.

- Sometimes participants are engaged in busy schedules, so the researcher gave her telephone number to all participants who did not complete the questionnaire in her presence so that they could seek an explanation of any points which needed substantiation or clarification.
- If there was any information missing from a questionnaire, a follow up phone call was conducted to obtain the missing information from the participant.

A questionnaire was the preferred strategy for this study for three reasons. Firstly, adopting a survey approach would enable the researcher to validate the factors that emerged from focus groups and interviews, in order to reach accurate conclusions (Kimchi et al., 1991). Secondly, questionnaires can be distributed to very large samples. And finally, a major feature of a survey is that information is obtained from a sample of subjects who are selected from a study population and then, on the basis of this information, the whole study population can be described. In other words, population parameters can be estimated on the statistics (Cormack, 1996). The researcher was aware of the danger of coming up with overly structured and insensitive data but she was going to analyse the data in the light of the qualitative findings.

7.2 The Questionnaire

This part describes the questionnaire in terms of:

(1) The content of the questionnaire;

(2) Questionnaire validity;

(3) Consulting experts;

(4) Questionnaire reliability; and

(5) Pilot study.

(1) - The Content of the Questionnaire. The questionnaires were designed to be clear in structure and terms, concise and not lengthy. Considerable care was taken to follow the format of a logical sequence of questions in order to avoid confusion and facilitate data collection. The measurement scale was carefully selected to correspond with the purpose of the study. The Office of Measurement at Kuwait University was consulted over the format of the questions and the clarity of the wording.

The questionnaire was divided into two sections. The first section included demographic questions that would help to gather information about the respondent's organisation (place of work), sex, age, nationality, level of education, language proficiency, job position, number of years in the position, and training. In addition, there were questions about the general attitude towards computer usage. Each question was supplied with different options that the respondent could choose by ticking (Appendix 7).

The second section of the questionnaire was divided into two further parts. In the first part, respondents were asked to use a Likert Scale to rank

their perception of the degree to which they felt that each factor, inquired about separately in each question, affects HIS implementation.

Themes were chosen based on all previous stages (Table 6.1). Table 7.1 shows those factors and their corresponding operational definitions as inquired about in the questionnaire.

Likert Scales are commonly used in social research. They are particularly useful for situations in which it is desired to measure respondents' perceptions or opinions. Therefore, in order to measure respondents' perceptions, a set of statements is selected, each of which reflects favorably or unfavorably on the concepts or the attribute being measured. The respondents were asked to indicate, on a scale, whether they 'agree' or 'disagree'.

Table 7.1: Factors within themes emerged from the focus group and interviews and their corresponding operational definition

Factors	Operational Definition
Organisational theme	
1. Insufficient planning	Planning is the process of determining the organisation's desired future position and deciding how best to get there. Insufficient means not enough Insufficient planning means not enough planning
2. Formation of technology team	Formation of work teams comprise representatives from different functional areas of the organisation and work together on various projects and activities
3. Uncertainty	Uncertainty exists when managers have little information about the implementation and their affect on the organisation which cause uncertainty of the innovation benefit
4. Lack of Communication	Communication is the process by which two or more parties exchange information and share meaning Lack means absence or deficiency of communication
5. Resistance to change	Resistance to change within the organisation can come from sources that are either external or internal to the organisation Resistance of change in this study means resistance of old way in doing things
6. Resources allocation	Lack of budget or resources
7. Top management computer literacy	Top management lack of computer experience
8. Lack of support from the management	Lack of top management support for the innovation
9. Bureaucracy	A concept of bureaucracy as described by Weber was
10. Organisational stability	Stability of positions within the MOH
11. Conflict of interest	Conflict is disagreement among parties over interest (i.e. money, plans or goals)
12. Lack of end-users involvement	Involvement is defined as an act or instance of participation and sharing as in benefits. In IS the term users involvement has generally referred to series of activities or behaviours performed by users or their representatives during the systems development processes Lack means absence or deficiency of end-users involvement
13. Lack of effective leadership	Is the process and a property. As a process, leadership involves the use of noncoercive influence. Leadership is vital because it has such a powerful influence on individual and group behaviour Lack means absence or deficiency of effective leadership
14. Lack of IT manpower	Lack of IT expertise

15. Increased workload	The amount of work assigned for employees increased
16. Top management commitment	Top management committed to the organisation goals and visions
17. Lack of competition	Organisations face myriad competitive challenges that they must address to survive. Organisations must also meet competitive challenges if they are to succeed
18. Incentives	Additional money for certain types of performance.
Cultural theme	
1. Diversity of the work place	Is the differences, such as in age, gender, ethnic heritage, race and sexual orientation, that make up the employees of organisations
2. Unclear responsibilities, policies and procedures due to language barrier	Communication is an aspect of interpersonal relations that obviously is affected by the international environment, partly because of language issues and partly because of coordination issue
3. Accountability	Workers should be held responsible for their performance
4. Low wages	Low salaries, alienation is the state or experience of being alienated
5. Unhealthy competition	Conflict due to cultural differences.
User satisfaction theme	
1. Ease of usage	The degree to which a new technology is perceived as relatively difficult to understand and use
2. Confidentiality	Is an ethical concept. It is the ethical as well as a legal concept endorsed by health professionals to meet the expectation of patients that their information when provided to an authorised user will not be redisclosed
3. Timeliness	The system is generated in short period of time
4. Content	The system provides the precise information that needed by users
5. Format	The output is accurate
6. Benefit realisation (relative advantage)	The degree to which the innovation represents an improvement over prior ways of doing things
7. Trialability	The degree that the innovation maybe experimented with on a trail basis
8. Observability or results demonstrability	The degree to which the operations and results of a new technology are observable to others
9. Compatibility	The degree to which innovation is consistent with existing values, past experiences, and current needs of potential adopters
10. Training	Training is referred as to develop the habits, thoughts, or behaviour of a person by discipline, instruction and practice to impart efficiency and to make the system proficient

However, more choices may be permitted to indicate the strength of agreement or disagreement. Generally, five categories are used: strongly agree, agree, neutral, disagree, and strongly disagree (Anderson et al., 1983). In this study, the respondents were asked to check a 6-point Likert-type scale, from 'strongly agree' (point 6) to 'I don't know' (point 1). Therefore, the highest achievable score for each item is 6 points, whereas the lowest achievable score is 1 point. The decision to use Likert scale format in the formulation of the statements was due to its perceived ability to assess individual perceptions using a series of choices.

In the second part of section two of the questionnaire, a table was provided in which the respondents could rank the factors in terms of their importance in affecting the success of HIS implementation. (To see how this table is presented, refer to Appendix 7, which is a copy of the questionnaire used in this study).

Upon completion of the questionnaire, it was tested for its validity and reliability.

(2) -Questionnaire Validity. Validity is the extent to which the instrument used to collect data measures what is intended to measure. Babbie (1992:120) defines validity as:

“A descriptive term used of a measure that accurately reflects the concept that is intended to measure”.

Validity in this study was proved when the pilot test was conducted (see below). This indicated that the instrument was applicable to the research questions. As Bauman (1980:22) suggests, the researcher needs to:

“Review the literature, perform a pilot study, and obtain expert assistance”.

Since literature was reviewed (Chapter Three), and a pilot study was conducted, it remained for the researcher to seek expert opinion to increase the validity of this study.

(3) Consulting Experts. The content validity requires the instrument to be tested rather than administered (Friedman et al., 1997). Therefore, it was essential to consult a number of specialists from outside the circle of the respondents in order to check the validity of the instrument. Mouly (1978) calls this procedure ‘consulting experts’. The procedure is accomplished by asking a panel of specialists to complete the questionnaire in order to obtain feedback from them. The draft was reviewed to ensure that the definitions and the concepts addressed were in fact clear and grounded, and to achieve an agreement among the panel that the instrument measured what it is supposed to measure.

(4) Questionnaire Reliability. Reliability represents the consistency of measure obtained (Burns et al., 1997). For example, if one were using a scale to obtain the weight of subjects, one would expect the scale to indicate the same weight if the subject stepped on and off the scale several times. A

scale that did not show the same weight each time would be unreliable. Ideally, one would be able to evaluate the reliability of the questionnaire. However, to compute test-retest reliability, it would be necessary to administer the questionnaire to the same sample twice. In other words, a reliable instrument is one that produces consistent results over time, place and such a step was not feasible in this study due to time limitation. Internal consistency can be evaluated based on a single administration, but this type of reliability is most appropriate for scales that measure a single variable, trait, or attitude. Since the present questionnaire measures a number of fluid themes (factors) emerging from the qualitative stage, internal consistency would not be a meaningful test of reliability.

A questionnaire packet was developed. The packet included the final copy of the questionnaire and a cover letter addressed specifically to the respondents, explaining the purpose of the study and assuring them of the confidentiality of their responses, in addition to the ethical committee's approval, signed by the Under-Secretary of the MOH (Appendix 5). The packet also included the researcher's contact number in case any points needed substantiation or clarification. Before administering the questionnaire, a pilot study was conducted.

(5) Pilot Study. A pilot study was conducted in February 2004 on MOH managers, and at Al-Adan hospital on a group consisting of ten people: two managers, two administrators, two clinicians, two medical record clerks,

one nurse, and one technician. The instrument was also tested by some faculty members at the College of Health Sciences, Kuwait. The questionnaire required approximately 20-30 minutes to complete.

The pilot study gave the researcher the final opportunity for additions, deletions and modification, before the final distribution of the questionnaire. It familiarised the researcher with the environment in which the research was to take place. Finally, it served to gain information about how diverse or homogenous the questionnaire population was likely to be. Creswell (1994) states that:

“This testing is important to establish the face validity of an instrument and improve questions, format and scale”.

The questionnaire required approximately 20-30 minutes to complete.

Hypotheses. Building on what was learned from the literature review, focus group and interviews about the factors that had affected the successful HIS implementation, the researcher hypothesised the following that:

1. Employees who have a less positive attitude to the use of computers in the workplace are older than those who display a more positive attitude (Calhoun et al., 1989:3).
2. Employees who have a less positive attitude to the use of computers in the workplace have less formal education than those who display a more positive attitude (Calhoun et al., 1989:3).

3. Employees who have a less positive attitude to the use of computers in the workplace have been employed for a longer period of time at the hospital than those who display a more positive attitude (Calhoun et al., 1989:3).
4. Kuwaiti employees (top management) have different perceptions of HIS implementation to non-Kuwaiti employees (end users).
5. Different working groups (professions) have different perceptions of the organisational themes that emerged from the qualitative stage:
 - Poor quality of planning in the public sector has affected HIS success.
 - Lack of team formation that consists of representatives from all stakeholders to manage the whole implementation process has affected system success.
 - Uncertainty of the system benefits has affected HIS success.
 - Lack of communication in Al-Amiri hospital because the top management are Kuwaitis and the end users are non-Kuwaitis.
 - Clinicians' pride and resistance to change has affected HIS implementation.

- Limited resources have affected the system success.
- The top management at MOH are computer illiterate.
- Lack of support from top management has affected system success.
- The bureaucratic system of rules and procedures in MOH has affected HIS success.
- The frequent position change in the top management in the public sector has affected system success.
- Conflict of interest between different committees within MOH has affected the system success.
- The end users (because they are non-Kuwaitis) were not involved with HIS development.
- Absence of supportive leadership during HIS implementation process in the public sector has affected the system success.
- Lack of IT specialised staff was the reason for HIS failure.
- The HIS increased users' workload in the public sector which has affected the system success.
- MOH was not committed to the process of implementation from its beginning to the end.

- The public sector lacks competition from rival organisations which, in turn has affected, system success.

8. Different working groups (professions) have different perceptions of the cultural themes that have emerged from the qualitative stage:

- Organisational diversity has affected the HIS success
- A language barrier between the employees in the public sector which has affected the understanding of rules and regulations which have affected, in turn, HIS success
- Lack of active rules and regulations to assess poor performances in public sector have affected HIS success
- There is distinction in salaries between Kuwaitis and non-Kuwaitis.

9. Different working groups (professions) have different perceptions of the user satisfaction themes that have emerged from the qualitative stage:

- The HIS was not easy to use.
- The system implemented did not improve the confidentiality of information in the public sector

- Needed information was not provided by the system used in the public organisation within an acceptable time.
- The system used in the public sector does not provide precise information needed by users.
- The system used in the public sector fails to provide various output formats needed by users.
- The HIS used in the public sector did not improve the users' way of doing things.
- The public sector did not provide users with an opportunity for HIS to be experimented with on a trial basis prior to system implementation
- The benefits and results of the system were not observable by others in the public sector.
- The HIS used in the public sector was not compatible with the users' work needs.
- Lack of compatible training had affected HIS usage.

7.3 Arabic Version Questionnaire

Because it was anticipated that some of the questionnaire respondents might be illiterate in English, the questionnaire was translated into Arabic.

The following steps were followed to ensure the appropriateness of the translation process (McGrath et al., 2003:17)

- 1- The final version of the English questionnaire was translated into the Arabic language by two different colleagues from the Arabic language department in the Art College of Kuwait University.
- 2- The Arabic version was submitted to two other colleagues from the English language department in the Arts College of Kuwait University to back retranslate the questionnaire into English, in order to ensure that the original meanings in English had been retained.
- 3- The final Arabic version was administered to health professionals of Arab nationalities, for an assessment of its comprehensiveness and content validity.

7.4 Setting

The questionnaire was administered to members of all stakeholders groups that were identified during the previous stages of the study (Section 4.4), and were concerned with HIS implementation. They were either decision makers with regard to HIS implementation (i.e. top management) or end users. The stakeholders were chosen from different settings to cover the Kuwaiti HCDS in its two sectors, namely the public and the private.

As described in Section 2.3.2, in the public sector, the top management is located in the MOH, whereas the end users were selected from Al-Amiri hospital.

As regards the private sector, Al-Mowasat private hospital was selected. This setting was chosen to represent the top management and end users' perspectives in the private sector, because the decision making is located within the hospital in this sector, (Section 2.3.3).

7.5 Population

For the public sector, the total population of healthcare stakeholders for the public sector used was 300 in MOH (i.e. top management) and 1698 in Al-Amiri hospital (i.e. top management and end users such as clinicians, pharmacists, technicians, nurses, and clerks). Of those 150 were top management and 1548 end users.

Table 7.2: The Population of the Study in the Public Sector

Organisation	Population Size
Top Management, Public Sector: (MOH)	300
Top management, Public Sector: (Al-Amiri)	150
End User, Public Sector : (Al-Amiri)	1548
Total	1998

The sample defined in the study for Al-Amiri hospital was the morning shift staff. The researcher did not include the night shift for three

reasons. Firstly, it was decided that the morning shift was a truer representation of the working environment (since the working hours in governmental hospitals are from 7:00 to 2:00 and all other shifts are treated as overtime). Second, only clinicians, technicians, pharmacists and nurses work night shifts. And finally, cultural issues preclude females from working during late hours at night (Shah, 1986).

For the private sector, the total population for Al-Mowasat hospital was 172. Of those 42 were top management and 130 end users (such as clinicians, pharmacists, technicians, nurses and clerks), See table 7.3.

Table 7.3: The Population of the Study in the Private Sector

Organisation	Population Size
Top Management, Private Sector: (Al-Mowsat)	42
End User, Private Sector : (Al-Mowsat)	130
Total	172

7.6 Sample size

From a sampling theory point of view, each individual in the population should have an equal chance of being sampled. The method of achieving this is referred to as random sampling. The target population for this study consisted of all health professionals and decision makers working in the Ministry of Health, Al-Amiri and Al-Mowasat hospitals, comprising 2122

professionals in the 2003 directories of the Ministry of Health, Al-Amiri, and Al-Mowasat hospitals. However, in view of limited resources and time, which frequently constrain a study of the entire population of interest, care was taken to ensure that the sample would be representative of the population.

Stratified random sampling was considered as optimal in view of the nature and scope of this study.

“The chief aim of the stratified random sample is to ensure that different groups of the population are adequately represented in the sample, so that the level of accuracy in estimating parameters is increased”
(Nachmias et al., 1992:179).

The researcher subdivided the setting into a separate stratum, and a stratified random sampling method was used. The choice of actual respondents was selected randomly from each of the defined strata. Adams et al (1985) recommends stratified random sampling as an efficient and high quality data producing device because it guarantees that subgroups in a population will be represented.

Population % = strata/total population

Sample size = total population * population %

Now, the sample size from each strata was calculated. The stakeholders were chosen proportionally from six categories of health professions. These are: (1) Top management in MOH, (2) Top management in the hospital, (3) Clinical technicians, (4) Clinicians, (5) Nurses, (6) Head of

clinical department, (7) Supervisors, (8) Technicians, (9) Clerks and (10) IT specialists (see Table 7.3).

Lists of participants were generated randomly from the directories, and then imported into a Microsoft Excel document to assign each with a unique username and a password to assure users of confidentiality when collecting data.

Table 7.4: The Population and the Sample Size that was Calculated for the Public Sector

Stratum	Stratum size (Population)	Proportion %	Sample Size
Top Management, Public Sector: (MOH)	300	14	70
Public Sector : (Al-Amiri) Top management in the hospital	150	7	35
Public Sector : (Al-Amiri) Clinical technicians (100) Clinicians (340) Nurses (500) Head of clinical department (56) Supervisors (50) Technicians (288) Clerks (199) IT specialists (15)	1548	71	353
Total	1998	,92	458

Table 7.5: The Population and the Sample Size that was Calculated for the Private Sector

Stratum	Stratum size (Population)	Proportion %	Sample Size
Top Management, Private Sector: (Al-Mowsat)	42	2	10
End user, Private Sector : (Al-Mowsat) Top management in the hospital Clinicians Pharmacists Nurses Technicians Clerks	130	6	30
Total	172	,8	40

7.7 Plan for Data Analysis

Prior to data analysis, data processing was conducted in order to make the results of the questionnaire more valid and reliable. The data processing included:

- Checking the data to identify commonality in the responses, and ensure that answers were categorised into groups;
- Editing;
- Coding the data by translating the information that questionnaire respondents provided into numerical symbols that could be processed by a computer;
- Cleaning the data to detect and correct errors during the computerisation of the questionnaire data

The data analysis was conducted using Statistical Package for Social Sciences (SPSS) software. With regard to the questionnaire data, descriptive statistics such as frequencies and percentages were run and used.

7.8 Questionnaire Findings

7.8.1 Overview. This part is devoted to presenting the findings of the questionnaire. After a presentation of the questionnaire administration process and the response rate, the results of the findings in this part are organised into one major section, so that the results can be viewed in a more organised and systematic manner. This section is about the public sector (i.e. MOH and the Al-Amiri hospital), and the private sector represented by the Al-Mowasat hospital.

7.8.2 Questionnaire Administration Process & Response Rates.

The researcher began distributing the questionnaire packet on March 1, 2004, spending three to five days in each of the selected settings, before moving on to another one. The questionnaire was completed and returned through a designated box prepared by the researcher, located in the Medical Record Department of each setting. The collection of the questionnaires was completed by the end of April 2004.

Since limited responses were received within the first three weeks, the time for return and completion of the questionnaire was extended within the time frame of the study. Friedman et al (1997), Creswell (1994), and others

indicated certain procedures to increase the response rate, for example reminder postcards or telephone calls. Therefore, after three weeks, phone calls were made when possible, and e-mail messages were also sent.

As indicated in Section 7.6, the researcher sent the questionnaire to 493 stakeholders. Of the 493, only 317 subjects responded, yielding a total response rate of 67%. Table 7.4 and Table 7.5 present the response rates by setting and stratum.

Table 7.6: Questionnaire Response Rate in the Public Sector

Stakeholders	Total questionnaires	Total responded	% Rate
MOH (Top Management)	70	40	57
Al-Amiri (Top Management)	40	32	80
Al-Amiri (End User)	353	250	71

As table 7.6 shows, the MOH, Al-Amiri top management and Al-Amiri end users resulted in response rates of between 57%, 80% and 71%, respectively.

Table 7.7: Questionnaire Response Rate in the Private Sector

Stakeholders	Total questionnaires	Total responded	% Rate
Al-Mowsat (Top Management)	10	7	70
Al-Mowsat (End Users)	30	20	67

In Al-Mowasat hospitals, the top management response rate was 70% and the end users rate was 67%, as table 7.7 shows.

Usually, a low response rate raises concerns about the non-response bias that affects the generalisability of results. However, the response rates in this study are considered normal for studies of this nature. Moreover, the reasons for lack of response to the questionnaire were noted and categorised as:

- Refusal to participate: some participants were unwilling to participate due to reasons such as lack of interest or busy schedules: no telephone calls were answered or questionnaires returned.
- Non-valid cases: a few cases were eliminated because they contained a lot of missing data.

7.8.3 The Public and Private Sector Findings. As discussed in Section 7.2, the questionnaire consisted of two sections. One was concerned with demographics and general attitude questions; the second was divided into two further parts. The first part inquired about the respondents' perceptions regarding various factors influencing HIS implementation success on a 6 point Likert Scale, and the second part inquired about the respondents' perceptions regarding the most important factors influencing HIS implementation success (Appendix 7). The following presentation of the findings of the public and private sectors will be divided into three parts based on the three parts of

questionnaire. The researcher will present the first part, i.e., demographics and attitudes questions in the next section.

Public and Private Sector Demographics & General Attitudes toward Computer Usage:

1. Organisation. From the respondents in the public sector, 13.7% (40) were from MOH 10.3% (30) were top management at Al-Amiri hospital and 75.8% were end users. In the private sector 26% (7) respondents were top management, while 74% (20) were end users.

2. Sex. In the public sector sample, males (57.5%) exceeded females (42.5%) in the MOH. The respective figures for top management in Al-Amiri hospital were 86.6% and 13.3%. However, females outnumbered males in the end users group.

Table 7.8: The Participants’ Gender in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Sex						
Female	17	42.5	4	13.3	49	23.6
Male	23	57.5	26	86.6	220	100
Total	40	100	30	100	171	76.4

In the private sector sample, males (85.7%) outnumbered females (14.28%) in the top management. In the end users’ groups, males were 65% and females were 35%.

Table 7.9: The Participants’ Gender in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Sex				
Female	1	14.28	7	35
Male	6	85.7	13	65
Total	7	100	20	100

3. Age. In the public sector, with regard to age distribution, it was found that in the MOH group most of the respondents (23%) fell into the 51-60 age group, while the fewest (8%) fell into the 61-70 age group. However, in the top management, most of the respondents (43.3%) fell into the 30-40 group, and the least (23.3%) were in the 41-50 group. With the end users group, most (35%) fell into the 30-40 age group and only (3%) fell into the 61-70 age group.

Table 7.10: The Participants’ Age in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Age group						
17-20	0	0	0	0	23	9.2
21-29	6	15	10	33.3	32	16.8
30-40	12	30	13	43.3	75	35.2
41-50	10	25	7	23.3	69	30.4
51-60	9	22.5	0	0	14	5.6
61-70	3	7.5	0	0	7	2.8

Most of the respondents (57%) in the top management group in the private sector fell into the 30-40 age group, and the least (14%) fell into the 51-60 age group. However, the majority of the end users group (45%) fell into the 30-40 age group, with only 5% falling into the 51-60 age group.

Table 7.11: The Participants’ Age in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Age group				
17-20	0	0	0	0
21-29	0	0	7	35
30-40	4	57.14	9	45
41-50	2	28.6	3	15
51-60	1	14.28	1	5
61-70	0	0	0	0

4. Nationality. In the public sector, 95% of the respondents in the MOH group were Kuwaitis, and only 5% were non-Kuwaitis. 100% of the top management in Al-Amiri hospital were Kuwaitis. However, 89% of the end users group were non-Kuwaitis, and only 11% were Kuwaitis.

Table 7.12: The Participants’ Nationality in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Nationality						
Kuwaiti	38	95	30	100	24	11
Non-Kuwaiti	2	5	0	0	196	89
Total	40	100	30	100	220	100

In the private sector, 71% of respondents in the top management group were non-Kuwaitis, and only 29% were Kuwaitis. 75% of respondents in the end users group were non-Kuwaitis.

Table 7.13: The Participants' Nationality in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Nationality				
Kuwaiti	2	28.57	5	25
Non-Kuwaiti	5	71.42	15	75
Total	7	100	20	100

5. Level of Education. It was interesting to find that most respondents from the MOH, i.e. 37.5% (15), were undergraduates, while 22.5% (9) were graduates. In the top management of Al-Amiri hospital the majority of employees 50% (15) had a two year diploma, while 16.6% (5) of the respondents were graduates. The majority of the end users in Al-Amiri hospital were graduates (160), while only 5% were found to have high school or lower level of education.

Table 7.14: The Participants’ Level of Education in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Education Level						
High School or less	7	17.5	3	10	5	2.27
Professional Education	9	22.5	15	50	15	6.8
Under-Graduate	15	37.5	7	23.3	35	16
Graduate	9	22.5	5	16.6	160	73
Others	0	0	0	0	5	2.27
Total	40	100	30	100	220	100

The majority of the top management in the private sector were graduates (57.14%), while none were found to have high school education or lower level.

The majority of the end users group were either graduates or undergraduate (35%), while only 20% were found to have high school or lower level of education.

Table 7.15: The Participants’ Level of Education in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Education level				
High School or less	0	0	0	0
Professional Education	2	28.57	3	20
Under-Graduate	1	14.28	7	35
Graduate	4	57.14	10	35
Others	0	0	0	0
Total	7	100	20	100

6. Arabic Language Proficiency 100% of top management in MOH and Al-Amiri hospital reported that they spoke excellent Arabic, while only 18.18% of the end users' group in Al-Amiri hospital reported that they spoke excellent Arabic. On the other hand, 9.1% of the end users reported their Arabic to be poor, while 41% of the end users reported their Arabic to be average and 32% reported it to be good.

Table 7.16: The Participants' Arabic Language Proficiency in the Public Sector

	MOH (n=40)		Top Management Al- Amiri (n=30)		End Users Al- Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Language Proficiency: Arabic						
Poor	0	0	0	0	20	9.1
Average	0	0	0	0	90	41
Good	0	0	0	0	70	32
Excellent	40	100	30	100	40	18.18
Total	40	100	30	100	220	100

In the private sector the top management and end users reported that they spoke excellent Arabic except for 14.28% of the top management who reported their Arabic level to be average, whereas 20% and 10% of the end users' group reported their Arabic to be, respectively, of poor and average levels.

Table 7.17: The Participants’ Arabic Language Proficiency in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Language proficiency: Arabic				
Poor	0	0	4	20
Average	1	14.28	2	10
Good	0	0	0	0
Excellent	6	85.71	14	70
Total	7	100	20	100

7. English Language Proficiency. 17.5% of respondents in the top mangement of the public sector reported average English language proficiency, and 52.5% reported good English language proficiency. 33% of top management in Al-Amiri hospital reported poor English, while 50% reported average English, 10% reported good English, and 6.66% reported excellent English. On the other hand, within the end users’ group in Al-Amiri hospital, 14% reported poor English and 47% reported excellent English.

7.18: The Participants’ English Language Proficiency in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Language Proficiency: English						
Poor	0	0	10	33.3	35	16
Average	7	17.5	15	50	42	19.1
Good	21	52.5	3	10	56	25.5
Excellent	12	30	2	6.66	87	39.6
Total	40	100	30	100	220	100

In the private sector, 28.57% of respondents in the top management reported average English language proficiency and 71.42% reported excellent English language proficiency. However, in the end users' group, 80% reported excellent English and 10% reported average and good English language levels.

7.19: The Participants' English Language Proficiency in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Language proficiency: English				
Poor	0	0	0	0
Average	2	28.57	2	10
Good	0	0	2	10
Excellent	5	71.42	16	80
Total	7	100	20	100

8. Number of Years in Current Work. The respondents were asked to report the years of experience they had in their present job. In the public sector, 45% of the respondents in the MOH had between 6 to 10 years experience, while 5% had 20 years or more experience. In the top management group of Al-Amiri hospital, 40% had 11-20 years experience, while 7% had 20 years or more experience. In the end users' group, 46% respondents had 6 to 10 years experience, while 4% had more than 20 years.

Table 7.20: The Participants’ Number of Years in Current Work in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Number of Years in Current Work						
Less than a year	0	0	0	0	12	5.5
1-5 years	6	15	9	30	67	30.5
6-10 years	18	45	7	23	102	46
11-20 years	14	35	12	40	31	14.1
More than 20 years	2	5	2	7	8	4
Total	40	100	30	100	220	100

In the private sector, 42.85% of the respondents in the top management had between 1 to 5 years experience in their present position and 14.28% had 11 to 20 and more than 20 years experience. In the end users’ group, 55% of the respondents had 6 to 10 years experience, while 10% had 11 to 20 years experience.

Table 7.21: The Participants’ Number of Years in Current Work in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Number of years in current work				
Less than a year	0	0	0	0
1-5 years	3	42.85	7	35
6-10 years	2	28.57	11	55
11-20 years	1	14.28	2	10
More than 20 years	1	14.28	0	0
Total	7	100	20	100

9. Categories of Job Positions. Participants were asked to indicate their current positions according to twelve categories. The results showed that the majority of MOH participants (65%) were administrators, whereas a minority (10%) held the position of Assistant Undersecretary. In the end users’ group the majority were clinicians (34%), and the minority position held was clerks (3.6%).

Table 7.22: The Participants’ Job Positions in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Categories of Job Positions						
Assistant undersecretary	4	10	0	0	0	0
General managers	10	25	0	0	0	0
Hospital management	0	0	30	100	0	0
Administrator	26	65	0	0	0	0
Clinical technician	0	0	0	0	30	14
Medical doctors	0	0	0	0	75	34
Nurses	0	0	0	0	67	31.5
Head of clinical department	0	0	0	0	5	2.27
Supervisors	0	0	0	0	9	4
Technicians	0	0	0	0	20	9
Clerks	0	0	0	0	8	3.6
IT specialist	0	0	0	0	6	2.7
Total	40	100	30	100	220	100

In the private sector, it was found that the majority of top management positions (42.85%) were either administrators or hospital management, whereas the minority (14.28%) held a general manager’s position. In the end users’

group the majority were nurses (25%), while (10%) held the position of head of clinical department, supervisor, technician or IT specialist.

Table 7.23: The Participants Job Positions in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Categories of job position				
Assistant undersecretary	0	0	0	0
General managers	3	42.85	0	0
Hospital management	3	42.85	0	0
Administrator	1	14.28	0	0
Clinical technician	0	0	2	10
Medical doctors	0	0	4	20
Nurses	0	0	4	20
Head of clinical department	0	0	2	10
Supervisors	0	0	2	10
Technicians	0	0	2	10
Clerks	0	0	2	10
IT specialist	0	0	2	10
Total	7	100	20	100

10. Number of Patients in an Average/Week. Regarding the number of patients seen on average per week in the public sector, this inquiry was not applicable to the MOH and top management group, but it was aimed at finding out the workload of end users. Among the end users’ group, it was found that 60.4% of them see 25 or more patients per week, and 9.2% see 16-20 patients per week. However, 23.2% said that the question was not applicable to them.

Table 7.24: Number of Patients in an Average Week in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Number of patients in an average/week						
0 patients/week	0	0	0	0	0	0
1-5 patients/week	0	0	0	0	0	0
6-10 patients/week	0	0	0	0	0	0
11-15 patients/week	0	0	0	0	18	7.2
16-20 patients/week	0	0	0	0	23	9.2
25 or more patients/week	0	0	0	0	151	60.4
Not applicable	0	0	0	0	58	23.2

The question regarding the number of patients seen on average per week in the private sector was not applicable to the top management group.

Among the end users’ group, it was found that 60% see 25 or more patients per week, and 10% see 16 to 20 patients per week. 30% said that the question was not applicable to them.

Table 7.25: Number of patients in an average week in the Private Sector

	Top Management Al- Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Number of patients in an average				
0 patients/week	0	0	0	0
1-5 patients/week	0	0	0	0
6-10 patients/week	0	0	0	0
11-15 patients/week	0	0	0	0
16-20 patients/week	0	0	12	60
25 or more patients/week	0	0	2	10
Not applicable	0	0	6	30

11. Number of Years of HIS Usage. None of the respondents in the MOH group have used HIS. Of the top management in Al-Amiri hospital, 77% had used HIS for 1-5 years and 17% had used HIS for less than one year, while 7% had never used HIS. 14.8% of end users from the Al-Amiri hospital did not use the HIS, while 63% had used it for 1-5 years and 15% had used it for 6-10 years or less than one year (1%).

Table 7.26: Number of Years of HIS Usage in the Public Sector

	MOH (n=40)		Top Management Al- Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Number of years of HIS usage						
0 years	40	100	2	7	37	14.8
Less than one year	0	0	5	17	3	1.2
1-5 years	0	0	23	77	22	8.8
6-10 years	0	0	0	0	157	63
11-20 years	0	0	0	0	31	12.4
More than 20 years	0	0	0	0	0	0

Regarding HIS usage in the private sector, 43% of the respondents in the top management group had used the system for 1-5 years, 29% of them had used it for 6 to 10 years, and 29% had used it for 11 to 20 years. Of the end users' group, 60% had used HIS for 6 to 10 years, and 35% had used it for 1 to 5 years.

Table 7.27: Number of Years of HIS Usage in the Private Sector

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Number of years of HIS usage				
0 years	0	0	0	0
Less than one year	0	0	0	0
1-5 years	3	43	7	35
6-10 years	2	29	12	60
11-20 years	2	29	1	5
More than 20 years	0	0	0	0

12. Overall Attitude Towards Using Computers at Work. In the public sector most of the MOH respondents (72.5%) had a positive attitude towards using computers. 77% of the top management in Al-Amiri had a positive attitude towards using computers. The end users also had a positive attitude, however, the figure was lower at 61%. Nevertheless, 23% of the end users agreed that with more training they would have a positive attitude towards using computers, boosting the total end users number that have a positive attitude towards using the computer to 84%.

Table 7.28: Overall Attitude Towards Using Computers at Work in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Overall attitude towards using computers at work						
I like to use computers	29	72.5	23	77	55	25
I do not like to use computers	7	17.5	7	13	40	18
With more training I think I would like to work with computers	4	10	0	0	125	57
Total	40	100	30	100	220	100

All of the top management in the private sector (100%) had a positive attitude towards using computers. The end users also had a positive attitude, but to a lesser extent (80%). Moreover, 10% of the end users agreed that with more training they would have a positive attitude towards using the computer, boosting the total end users number that have a positive attitude towards using the computer to 90%.

Table 7.29: Overall Attitude towards Using Computers at Work

	Top Management Al-Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Overall attitude towards using computers at work				
I like to use computers	7	100	16	80
I do not like to use computers	0	0	2	10
With more training I think I would like to work with computers	0	0	2	10
Total	7	100	20	100

13. Training. There were more MOH and top management in the public sector, 22.5% and 13% respectively, than end users (3%) who had not taken any classes. On-the-job classes were attended by 47.5% of respondents at the MOH, 20% of respondents from top management, and 79.6% of end user respondents. For this inquiry the respondents were provided with space to write down the number and type of classes attended. It is worth noting that their answers are not mutually exclusive, meaning that a respondent may have attended classes both on-the-job and outside of it.

Based on the respondents’ comments, there was a total of 31 training courses attended by the top management in Al-Amiri hospital. 10 were general Windows classes, the rest were for the specific to the HIS. With regard to the end users, of those who attended some sort of training either on the job (199) or outside of work (243), a total of 463 classes were attended. Of those only 117 were trained on the HIS. Among top management 68% of the

classes attended were focused on the HIS, while, only 25% of the classes attended by the end users were focused on the HIS.

Table 7.30: Training Classes Attended in the Public Sector

	MOH (n=40)		Top Management Al-Amiri (n=30)		End Users Al-Amiri (n=220)	
	No. of Respondents	%	No. of Respondents	%	No. of Respondents	%
Training classes attended						
None	9	22.5	4	13	7	2.8
On the job	19	47.5	6	20	199	79.6
Outside of work training	16	40	20	67	243	97.2
Other	0	0	0	0	0	0

In the private sector, on-the-job classes were attended by 100% of the top management, and 80% of end users. In addition, 60% of the end users had attended classes outside the work training.

Table 7.31: Training classes attended in the Private Sector

	Top Management Al- Mowasat (n=7)		End Users Al-Mowasat (n=20)	
	No. of Respondents	%	No. of Respondents	%
Training classes attended				
None	0	0	0	0
On the job	7	100	18	80
Outside of work training	0	0	12	60
Other	0	0	0	0

The researcher will present the second part of the results in the next section

Section Two:

Part One: Perceptions Regarding Factors Influencing HIS Success in the Public and Private Sectors

In the second part of the questionnaire, respondents were asked to rate 32 factors within the cultural, organisational and user satisfaction themes on a Likert scale ranging from “Strongly Agree, Agree, Undecided, Disagree to Strongly Disagree and I don’t know”. The results of these three themes will be discussed in the following section.

Tables below describe frequencies and percentages of organisational, cultural, and user satisfaction themes and factors within these themes that the public sector (i.e., MOH, top management, end users of Al-Amiri hospital) and the private sector (i.e. top management and end users in Al-Mowasat hospital) thought had a great influence on HIS implementation success.

1. Organisational Theme. Factors within the organisational theme were: insufficient planning, formation of technology team, uncertainty, lack of communication, resistance to change, resource allocation, top management computer literacy, lack of support from the management, bureaucracy, organisational stability, conflict of interest, lack of end user involvement, lack of effective leadership, champion, adequate IT manpower, increased workload, top management commitment, competition, and incentives.

Table 7.32: Perceptions Regarding Organisational Factors in the Public Sector (MOH)

Factors	MOH (n=40)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
1-Organisational												
Insufficient planning	0	0	0	0	0	0	10	2	25	62.5	5	12.5
Formation of team	27	67.5	10	25	0	0	2	5	1	2.5	0	0
Uncertainty	4	10	3	7.5	0	0	12	30	15	37.5	6	15
Lack of communication	1	2.5	2	5	0	0	14	35	23	57.5	0	0
Resistance to change	32	80	2	5	0	0	3	7.5	3	7.5	0	0
Resource allocation	27	67.5	3	7.5	0	0	4	10	5	12.5	1	2.5
Top management computer literacy	0	0	0	0	0	0	15	37.5	35	87.5	0	0
Lack of support from management	0	0	0	0	0	0	15	37.5	24	60	1	2.5
Bureaucracy	10	5	11	27.5	0	0	7	17.5	12	30	0	0
Organisational stability	24	60	15	37.5	0	0	0	0	0	0	1	2.5
Conflict of interest	2	5	5	12.5	0	0	3	7.5	22	55	8	20
Lack of end users involvement	0	0	2	5	0	0	11	27.5	26	65	1	2.5
Lack of effective leadership	0	0	0	0	2	5	17	42.5	21	52.5	0	0
Adequate IT manpower	13	32.5	12	30	0	0	6	15	9	22.5	0	0
Increased workload	0	0	0	0	0	0	15	37.5	17	42.5	8	20
Top management commitment	33	82.5	5	12.5	0	0	1	2.5	1	2.5	0	0
Lack of competition	2	5	3	7.5	0	0	6	15	24	60	5	12.5
Incentives	0	0	0	0	3	7.5	10	25	27	67.5	0	0

*The attitudes are measured on a 6-point Likert scale with ratings from 1-6

[6] Strongly agree, [5] Agree, [4] Undecided, [3] Disagree, [2] Strongly disagree, and [1] I don't know

Table 7.33: Perceptions Regarding Organisational Factors in the Public Sector (Al-Amiri Top Management)

Factors	Top Management at Al-Amiri hospital (n=30)												
	SA	%	A	%	U	%	D	%	SD	%	I	%	%
1-Organisational													
Insufficient planning	3	10	2	6.66	1	3.33	5	16.6	16	53.3	3	10	
Formation of team	22	73.3	5	16.6	0	0	3	10	0	0	0	0	
Uncertainty	3	10	1	3.3	0	0	9	30	14	46.6	3	10	
Lack of communication	1	3.33	2	6.66	1	3.33	10	33.3	15	50	0	0	
Resistance to change	15	50	10	33.3	0	0	3	10	1	3.33	1	3.33	
Resource allocation	14	46.6	6	20	0	0	3	10	5	16.6	2	6.66	
Top management computer literacy	1	3.33	2	6.66	0	0	5	16.6	19	63.3	3	10	
Lack of support from management	2	6.66	1	3.3	0	0	5	16.6	22	73.3	0	0	
Bureaucracy	0	0	1	3.3	3	10	5	16.6	16	53.3	0	0	
Organisational stability	12	40	6	20	0	0	3	10	2	6.66	7	23.3	
Conflict of interest	0	0	3	10	4	13.3	5	16.6	15	50	3	10	
Lack of end users involvement	4	13.3	2	6.66	1	3.3	1	3.3	22	73.3	0	0	
Lack of effective leadership	2	6.66	1	3.33	5	16.6	10	30	12	40	0	0	
Adequate IT manpower	15	50	5	16.6	0	0	7	23.3	3	10	0	0	
Increased workload	4	13.3	3	10	0	0	7	23.3	15	50	1	3.33	
Top management commitment	1	3.33	3	10	0	0	10	35.5	16	53.3	0	0	
Lack of competition	6	20	3	10	0	0	7	23.3	14	46.6	0	0	
Incentives	1	11.1	3	3.33	2	6.66	5	16.6	13	43.3	6	20	

Table 7.34: Perceptions Regarding Organisational Factors in the Public Sector (Al-Amiri End users)

Factors	End users in Al-Amiri hospital (n=220)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
1-Organisational												
Insufficient planning	201	91.3	11	5	0	0	3	1.36	2	.9	3	1.36
Formation of team	3	1.36	4	1.81	0	0	45	20.45	160	72.7	8	3.6
Uncertainty	196	89.1	10	4.5	0	0	8	3.6	3	1.36	3	1.36
Lack of communication	200	90.9	11	5	0	0	3	1.36	6	2.7	0	0
Resistance to change	68	30.9	15	6.8	56	25.5	22	10	59	25.8	0	0
Resource allocation	0	0	45	20.45	0	0	5	2.27	5	2.27	165	75
Top management computer literacy	145	65.9	46	20.9	0	0	16	7.2	10	4.5	3	1.36
Lack of support from management	198	90	11	5	0	0	8	3.6	3	1.36	0	0
Bureaucracy	199	90.4	13	5.9	0	0	7	3.18	1	.45	0	0
Organisational stability	177	80.4	33	15	0	0	17	7.72	3	1.36	0	0
Conflict of interest	10	4.5	10	4.5	0	0	10	4.5	6	2.7	180	81.8
Lack of end users involvement	213	96.8	5	2.2	0	0	1	.45	1	.45	0	0
Lack of effective leadership	209	95	6	2.7	0	0	3	1.36	2	.9	0	0
Adequate IT manpower	5	2.27	12	5.45	0	0	4	1.8	195	88.6	4	1.8
Increased workload	203	91.4	11	5	0	0	3	1.36	1	.45	2	.9
Top management commitment	5	2.27	1	.45	0	0	55	25	156	70.9	3	1.36
Lack of competition	78	35.4	55	25	33	15	44	20	5	2.2	5	2.2
Incentives	4	1.82	4	1.82	2	.91	55	25	133	60.45	22	10

Regarding the organisational theme, the following factors were selected by MOH participants as the most important factors affecting successful HIS implementation: resistance to change (32), resource allocation (27), organisational stability (24), Lack of IT manpower (13), bureaucracy (10), uncertainty of benefits (4) and lack of competition (2). 33 participants from MOH strongly agreed that they were committed to the implementation process of HIS from its beginning to the end, while 27 participants from the same group strongly agreed that they formed a team consisting of representatives from all stakeholders to manage the whole implementation process.

156 end users strongly disagreed that the top management were committed to the implementation process and 160 participants from the end users' group strongly disagreed that the top management had formed a team consisting of representatives from all stakeholders to manage the whole implementation process. The three groups strongly disagreed that incentives were used to encourage system usage in their organisation.

In the public sector the MOH and the top management at Al-Amiri hospital shared similar views regarding the organisational factors affecting HIS implementation. 15 participants from the same group strongly agreed on 'Resistance to change' and 'adequate IT manpower' as the most influential factors that affected successful HIS implementation, while 14 participants strongly agreed that 'lack of

resources' affected HIS implementation. In addition, 12 participants strongly agreed on 'Organisational stability' as the second most influential factor. 6 participants strongly agreed on the factors 'Lack of champion' and 'Lack of competition' as the third and fourth most influential factors. It is worth noting that 22 participants from this group thought that their organisation formed a team consisting of representatives from all stakeholders to manage the whole implementation process.

The first factor the end user participants in the public sector (Al-Amiri hospital) selected was 'Lack of end user involvement'. The 213 participants consisted of 73 clinicians, 65 nurses, 30 clinical technicians, 5 heads of clinical departments, 8 supervisors, 20 technicians, 6 IT specialists and 6 clerks. 26 participants from MOH and 22 from Al-Amiri top management participants strongly disagreed that 'Lack of end user involvement' had affected successful HIS implementation.

The second factor the end users in the public sector strongly agreed on was that 'Lack of effective leadership' had affected the system's success. The 209 participants included 73 clinicians, 66 nurses, 28 clinical technicians, 5 heads of clinical departments, 7 supervisors, 18 technicians, 6 IT specialists and 6 clerks. 21 participants from MOH and 12 from the top management at MOH strongly disagreed that the 'Lack of leadership' had affected successful HIS implementation.

The end user participants (203) strongly agreed that 'Increased workload' had affected system success. They included 70 clinicians, 65 nurses, 27 clinical technicians, 5 heads of clinical departments, 7 supervisors, 17 technicians, 6 IT specialists and 6 clerks. 17 participants from the MOH and 15 from the top management at Al-Amiri hospital strongly agreed that 'Increased workload' did not affect system success, which indicates a lack of communication between these groups.

The fourth factor was 'Insufficient planning' with, 201 participants (69 clinicians, 66 nurses, 26 clinical technicians, 5 heads of clinical departments, 7 supervisors, 16 technicians, 6 IT specialists and 6 clerks) from end users at Al-Amiri hospital selecting it. 25 participants from MOH and 16 from top management at Al-Amiri hospital strongly disagreed that 'Insufficient planning' had affected successful HIS implementation.

200 participants from the end users in the public sector strongly agreed that 'Lack of communication' had affected successful HIS implementation. They consisted of 63 clinicians, 61 nurses, 30 clinical technicians, 4 heads of clinical departments, 9 supervisors, 20 technicians, 8 clerks and 5 IT specialists. 23 participants from MOH and 15 top management at Al-Amiri strongly disagreed that 'Lack of communication' had affected the successful HIS implementation.

On the other hand, 199 end users strongly agreed that their top management's 'Bureaucratic rules and regulation' had affected successful HIS implementation, while 12 participants from the MOH strongly agreed. However, 16 from Al-Amiri top management strongly disagreed that their 'Bureaucratic rules and regulation' had affected successful HIS implementation.

The end users (198) strongly agreed that 'Lack of support from the top management' had affected the system's success. These included 74 clinicians, 57 nurses, 28 clinical technicians, 5 heads of clinical departments, 7 supervisors, 19 technicians, 7 IT specialists and 1 clerk. However, 24 participants from MOH and 22 participants from Al-Amiri top management strongly disagreed that their lack of support had affected system success.

In addition, 196 end user participants strongly agreed that the 'Uncertainty of benefits' had affected system success. These consisted of 66 clinicians, 62 nurses, 30 clinical technicians, 5 heads of clinical departments, 7 supervisors, 20 technicians, 3 IT specialists and 3 clerks. 195 of the end users (60 clinicians, 59 nurses, 29 clinical technicians, 4 heads of clinical departments, 5 supervisors, 18 technicians, 2 IT specialists and 3 clerks) strongly disagreed on the "Adequate IT manpower".

177 of the end user participants (62 clinicians, 63 nurses, 24 clinical technicians, 3 heads of clinical departments, 4 supervisors, 19 technicians, 2 IT specialists and 5 clerks) also strongly agreed on 'Organisational stability' as a factor that affected successful HIS implementation.

Table 7.35: Perceptions Regarding Organisational Factors in the Private Sector (Al-Mowasat Top Management)

Factors	Al-Mowasat Top Management (n=7)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
1-Organisational												
Insufficient planning	0	0	0	0	0	0	3	42.9	4	57.14	0	0
Formation of team	5	71.4	1	14.3	0	0	0	0	0	0	1	14.3
Uncertainty	0	0	0	0	1	14.3	2	28.6	4	57.14	1	14.3
Lack of communication	0	0	1	14.3	0	0	1	14.3	5	71.4	0	0
Resistance to change	2	28.6	1	14.3	0	0	1	14.3	3	42.9	0	0
Resource allocation	1	14.3	2	28.6	0	0	1	14.3	3	42.9	0	0
Top management computer literacy	0	0	0	0	1	14.3	2	28.6	4	57.14	0	0
Lack of support from management	0	0	1	14.3	0	0	4	57.14	2	28.6	0	0
Bureaucracy	1	14.3	0	0	0	0	2	28.6	4	57.14	0	0
Organisational stability	0	0	0	0	1	14.3	2	28.6	3	42.9	1	14.3
Conflict of interest	0	0	0	0	2	28.6	1	14.3	4	57.14	0	0
Lack of end users involvement	1	14.3	0	0	0	0	2	28.6	4	57.14	0	0
Lack of effective leadership	0	0	0	0	1	14.3	1	14.3	5	71.4	0	0
Adequate IT manpower	0	0	1	14.3	1	14.3	2	28.6	3	42.9	0	0
Increased workload	2	28.6	1	14.3	0	0	0	0	3	42.9	1	14.3
Top management commitment	3	42.9	3	42.9	0	0	0	0	0	0	1	14.3
Lack of competition	1	14.3	0	0	0	0	1	14.3	5	71.4	0	0
Incentives	6	85.7	1	14.3	0	0	0	0	0	0	0	0

Table 7.36: Perceptions Regarding Organisational Factors in the Private Sector (Al-Mowasat End Users)

Factors	End users Al-Mowasat (n=20)										
	SA	%	A	%	U	%	D	%	SD	I	%
1-Organisational											
Insufficient planning	2	10	1	5	2	10	7	35	10	0	0
Formation of team	13	65	4	20	0	0	1	5	2	0	0
Uncertainty	3	15	2	10	0	0	5	25	9	0	0
Lack of communication	0	0	0	0	0	0	9	45	11	0	0
Resistance to change	3	15	5	25	0	0	6	30	6	0	0
Resource allocation	0	0	0	0	0	0	8	40	12	0	0
Top management computer literacy	0	0	0	0	6	30	11	55	13	0	0
Lack of support from management	1	5	2	10	0	0	8	40	9	0	0
Bureaucracy	0	0	0	0	0	0	15	75	5	0	0
Organisational stability	1	5	3	15	0	0	7	35	9	0	0
Conflict of interest	0	0	0	0	2	10	5	25	13	0	0
Lack of end users involvement	0	0	0	0	4	20	9	45	7	0	0
Lack of effective leadership	0	0	0	0	1	5	4	20	11	4	20
Adequate IT manpower	12	60	0	0	0	0	8	40	0	0	0
Increased workload	0	0	2	10	0	0	4	20	14	0	0
Top management commitment	14	70	5	25	0	0	0	0	1	0	0
Lack of competition	0	0	0	0	0	0	10	50	10	0	0
Incentives	13	65	3	15	0	0	2	10	1	1	5

On the other hand, the top management in the private sector (Al-Mowasat hospital) strongly disagreed that organisational factors had affected successful HIS implementation. However, 5 participants strongly agreed that they formed a team consisting of representatives from all stakeholders to manage the whole implementation process. Moreover, 3 participants strongly agreed that they were committed to the implementation process from beginning to the end.

The end users in the private sector (Al-Mowasat hospital) strongly agreed that their top management were committed to the implementation process. 14 participants (3 clinicians, 3 nurses, 2 clinical technicians, 2 heads of clinical departments, 2 technicians, 2 IT specialists, and 2 clerks) expressed this view. In addition, 13 end users strongly agreed that their top management had formed a team consisting of representatives from all stakeholders to manage the whole implementation process. On the other hand, they strongly disagreed that the organisational factors had affected successful HIS implementation.

2. Culture Theme. Factors within this theme were: diversity of the workplace, language barrier, accountability, low wages and unhealthy competition.

The results showed that the MOH participants (35) strongly agreed 'Accountability' as the factor within the culture theme which has the greatest influence on HIS success, while 25 participants strongly agreed that 'Diversity of the workplace' is the second greatest influence. 11 participants agreed that there was unhealthy competition between different working groups due to different cultures and backgrounds. 26 participants from MOH strongly disagreed that 'Low wages' and 25 strongly disagreed that 'Language barrier' are factors that affected successful HIS implementation.

Although similarities were found between the MOH and top management groups (public sector) in regards to the factors, differences in the ranking order of those factors were observed. 23 participants strongly agreed on 'Diversity of workplace' as the most influential factor on HIS implementation, while 16 participants strongly agreed on 'Accountability' as the second most influential factor. In addition, 14 participants strongly agreed on the existence of 'Unhealthy competition' between different work groups due to different nationalities and cultures, and 15 participants strongly disagreed on 'Low wages' and 'Language barrier' as influencing factors.

The top management at the private sector (Al-Mowasat hospital) did not feel that these factors had affected the successful implementation of HIS.

Among the four factors in this group it was found that 191 end users of Al-Amiri hospital (75 clinicians, 67 nurses, 17 technicians, 7 supervisors, 19 clinical technicians and 6 clerks) strongly agreed on 'Low wages' as the factor that had the greatest influence on HIS implementation, while 189 participants from the end users strongly agreed on 'Language barrier' (75 clinicians, 65 nurses, 20 technicians, 5 supervisors, 19 clinical technicians and 5 clerks). Regarding the 'Diversity of the workplace', 75 participants (30 clinicians, 27 nurses, 10 technicians, 3 supervisors and 5 clinical technicians) strongly agreed that it had the greatest influence on HIS implementation, while only 4 participants strongly agreed that 'Accountability' had the greatest influence.

Table 7.37: Perceptions Regarding Cultural Factors in the Public Sector (MOH)

Factors	MOH (n=40)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
2-Cultural												
Diversity	25	62.5	8	20	3	7.5	3	7.5	1	2.5	0	0
Language barrier	0	0	10	25	1	2.5	4	10	25	62.5	0	0
Accountability	35	87.5	3	7.5	0	0	2	5	0	0	0	0
Low wages	2	5	4	10	2	5	6	15	26	65	0	0
Unhealthy competition	11	27.5	3	7.5	4	10	8	20	5	12.5	9	22.5

Table 7.38: Perceptions Regarding Cultural Factors in the Public Sector (Top Management at Al-Amiri)

Factors	Top Management at Al-Amiri (n=30)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
2-Cultural												
Diversity	23	76.6	3	10	0	0	2	6.6	2	6.6	0	0
Language barrier	5	16.6	6	20	0	0	1	3.33	15	50	3	10
Accountability	16	53.3	10	33.3	0	0	1	333	2	6.66	1	3.33
Low wages	2	5.8	1	3.33	0	0	10	33.3	15	50	2	6.6
Unhealthy competition	14	46.6	2	6.6	1	3.33	3	10	5	16.6	5	16.6

Table 7.39: Perceptions Regarding Cultural Factors in the Public Sector (Al-Amiri End users)

Factors	Al-Amiri End users (n=220)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
2-Cultural												
Diversity	75	34.1	34	15.4	55	25	23	10.45	15	6.8	18	8.18
Language barrier	189	85.9	23	10.45	0	0	3	1.36	5	2.27	0	0
Accountability	4	1.81	3	1.36	0	0	55	25	158	71.8	0	0
Low wages	191	86.8	12	5.45	0	0	10	4.5	7	3.18	0	0
Unhealthy competition	15	6.8	10	4.5	40	18.18	75	34.1	77	35	3	1.36

Amongst the private sector participants, end users shared similar views and perceptions of the reality of the implementation of the HIS with the top management in the same hospital, i.e., Al-Mowasat. Among the four factors in this group, it was found that five participants of the top management in the private sector (71.4 %) strongly disagreed that 'Language barrier' was the factor that had the greatest influence on HIS implementation, while three participants from the same group (42.9%) strongly disagreed on 'Organisational diversity'; 'Accountability' and 'Low wages'. On the other hand, twelve participants from the end user group (60%) strongly disagreed that 'Accountability' was the factor that had affected HIS implementation. Ten participants from the same group (50%) strongly disagreed on 'Unhealthy competition', while nine participants (45%) strongly disagreed on 'Language barrier' and 'Low wages'.

Table 7.41: Perceptions Regarding Cultural Factors in the Private Sector (Top Management)

Factors	Al-Mowasat Top Management (n=7)											
2-Cultural	SA	%	A	%	U	%	D	%	SD	%	I	%
Diversity	1	14.3	0	0	2	28.6	1	14.3	3	42.9	0	0
Language barrier	0	0	1	14.3	0	0	1	14.3	5	71.4	0	0
Accountability	0	0	0	0	1	14.3	3	42.9	3	42.9	0	0
Low wages	0	0	1	14.3	1	14.3	2	28.6	3	42.9	0	0
Unhealthy competition	0	0	1	14.3	2	28.6	1	14.3	1	14.3	2	28.6

Table 7.42: Perceptions Regarding Cultural Factors in the Private Sector (End Users)

Factors	Al-Mowasat End users (n=20)											
2-Cultural	SA	%	A	%	U	%	D	%	SD	%	I	%
Diversity	2	10	1	5	4	20	6	30	5	25	2	10
Language barrier	0	0	2	10	5	25	4	20	9	45	0	0
Accountability	0	0	0	0	1	5	7	35	12	60	0	0
Low wages	0	0	1	5	4	20	6	30	9	45	0	0
Unhealthy competition	0	0	0	0	2	10	5	25	10	50	3	15

3. User Satisfaction Theme. Since user satisfaction is commonly used as a proxy measure for IS success, and as the purpose of the study is to identify the factors that affect HIS implementation success in Kuwait's HCDS, the third part of the questionnaire included a set of questions to measure user satisfaction based on table 6.1.

Results showed that similar answers were observed by MOH and the top management at Al-Amiri hospital (public sector) regarding the user satisfaction factors having the most influential effect on HIS implementation success. For example, 34 of the MOH participants strongly agreed that needed information is provided by the system used in their organisation within an acceptable time. 19 participants from the same group believe that the system was user friendly and that the organisation provided adequate compatible training to the users, compared with 23 of the top management at Al-Amiri hospital (public sector) who strongly agreed that the system was user friendly. In addition, 21 participants from the same group strongly agreed that the HIS used in their organisation improved the users' way of doing things and the organisation provided adequate compatible training to the users.

Both groups strongly disagreed on the following factors: 'Format' and 'Content'.

The top management at Al-Mowasat hospital (private sector) strongly agreed on the following factors: Trialability, Observability, Ease of use,

Timeliness, Compatibility, Confidentiality and Training. They strongly disagreed on the following factors: Format and Content.

In the end users group at Al-Amiri group it was found that 150 (43 clinicians, 45 nurses, 29 clinical technicians, 4 heads of clinical departments, 5 supervisors, 18 technicians, 2 IT specialists and 4 clerks) strongly disagreed that the system was 'Compatible' with their needs. Some 145 participants strongly disagreed on 'Trialability'. These included 44 clinicians, 43 nurses, 29 clinical technicians, 4 heads of clinical departments, 5 supervisors, 18 technicians, 2 IT specialists and 4 clerks. The third factor which 135 participants in the end users group (39 clinicians, 41 nurses, 27 clinical technicians, 4 heads of clinical departments, 5 supervisors, 19 technicians, 1 IT specialist and 4 clerks) which the end users group strongly disagreed on was 'Observability'. They also strongly disagreed on the following factors: Relative advantage, Training, Timeliness, Ease of use, and Confidentiality. However, they strongly agreed on two factors, i.e. 'Content' (that the system did not provide the needed information within an acceptable time) and 'Format' (that the system used in their organisation fails to provide various output formats needed by users).

Table 7.42: Perceptions Regarding User Satisfaction Factors in the Public Sector (MOH)

Factors	MOH (n=40)										
	SA	%	A	%	U	%	D	%	SD	%	I
3-User satisfaction											
Ease of use	19	47.5	5	12.5	7	17.5	3	7.5	0	0	6
Confidentiality	13	32.5	10	25	1	2.5	4	10	12	30	0
Timeliness	35	87.5	3	7.5	0	0	2	5	0	0	0
Content	2	5	4	10	2	5	6	15	26	65	0
Format	1	2.5	0	0	2	5	4	10	29	72.5	4
Relative advantage	17	42.5	14	46.6	4	10	1	2.5	2	5	2
Triability	13	32.5	10	25	6	15	3	7.5	8	20	0
Observability	4	10	2	5	6	16	1	2.5	3	7.5	24
Compatibility	5	12.5	2	5	7	17.5	4	10	8	20	14
Training	19	47.5	12	30	3	7.5	4	10	2	5	2

Table 7.43: Perceptions Regarding User Satisfaction Factors in the Public Sector (Top management at Al-Amiri)

Factors	Top management at Al-Amiri (n=30)										
	SA	%	A	%	U	%	D	%	SD	%	I
User satisfaction											
Ease of use	23	76.6	3	10	0	0	2	6.6	2	6.6	0
Confidentiality	15	50	6	20	0	0	1	3.33	5	16.6	3
Timeliness	16	53.3	10	33.3	0	0	1	3.33	2	6.66	1
Content	2	5.8	1	3.33	0	0	10	33.3	15	50	2
Format	0	0	2	5.8	4	13.3	5	16.6	16	53.3	3
Relative advantage	21	70	1	3.33	2	5.8	1	3.33	3	10	2
Triability	17	56.6	4	13.3	3	10	2	5.8	1	3.33	3
Observability	4	13.3	3	10	3	10	7	23.3	9	30	4
Compatibility	15	50	4	13.3	1	3.33	5	16.6	2	6.6	3
Training	21	70	2	5.8	0	0	2	5.8	3	10	2

Table 7.44: Perceptions Regarding User Satisfaction Factors in the Public Sector (End Users at Al-Amiri)

Factors	End Users at Al-Amiri (n=220)											
	SA	%	A	%	U	%	D	%	SD	%	I	%
3-User satisfaction												
Ease of use	23	10.45	10	4.5	15	6.8	55	25	117	53.2	0	0
Confidentiality	17	7.7	13	5.9	7	3.18	40	20.4	100	45.5	43	19.5
Timeliness	9	4.1	5	2.3	23	10.45	56	25.5	120	54.5	7	3.18
Content	145	65.9	33	15	13	5.9	9	4.1	10	4.5	10	4.5
Format	167	75.9	34	15.5	11	5	7	3.18	1	.45	0	0
Relative advantage	8	3.6	10	4.5	13	5.9	39	17.7	130	59.1	20	9.1
Trialability	9	4.1	15	6.8	5	23	43	19.5	145	65.9	3	1.36
Observability	7	3.18	13	59	11	5	34	15.5	135	61.3	20	9.1
Compatibility	5	23	14	6.36	15	6.8	32	14.5	150	68.2	4	1.8
Training	13	59	17	7.7	20	9.1	44	20	126	57.3	0	0

The end users in Al-Mowasat hospital (private sector) strongly agreed on the 'Confidentiality' factor. The 17 participants included 3 clinicians, 3 nurses, 2 clinical technicians, 2 heads of clinical departments, 2 supervisors, 2 technicians, 1 IT specialist and 2 clerks. Some 15 considered the system 'Easy to use' and 'Compatible' with their needs, while 13 other participants believed that their system provided needed information within an acceptable time and that the benefits and that results of the system were observable by others in the organisation. On the other hand, they strongly disagreed that the system used in their organisation did not provide precise information needed by users (Content) that and the system used in their organisation failed to provide various output formats needed by users (Format).

Table 7.45: Perceptions Regarding User Satisfaction Factors in the Private Sector (Al-Mowasat Top Management)

Factors	Al-Mowasat Top Management (n=7)											
3-User satisfaction	SA	%	A	%	U	%	D	%	SD	%	I	%
Ease of use	4	57.1	2	28.6	0	0	1	14.3	0	0	0	0
Confidentiality	3	42.9	1	14.3	0	0	0	0	3	42.9	0	0
Timeliness	4	57.1	1	14.3	2	28.6	0	0	0	0	0	0
Content	1	14.3	1	14.3	0	0	1	14.3	4	57.14	0	0
Format	0	0	0	0	2	28.6	1	14.3	3	42.9	2	28.6
Relative advantage	3	42.9	0	0	1	14.3	1	14.3	0	0	2	28.6
Trialability	7	100	0	0	0	0	0	0	0	0	0	0
Observability	5	71.4	1	14.3	0	0	0	0	1	14.3	1	14.3
Compatibility	4	57.1	1	14.3	0	0	0	0	1	14.3	1	14.3
Training	3	42.9	2	28.6	0	0	0	0	0	0	2	28.6

Table 7.46: Perceptions Regarding User Satisfaction Factors in the Private Sector (Al-Mowasat End Users)

Al-Mowasat End Users (n=20)													
Factors	SA	%	A	%	U	%	D	%	SD	%	I	%	%
3-User satisfaction													
Ease of use	15	75	3	15	0	0	1	5	1	5	0	0	0
Confidentiality	17	85	2	10	0	0	1	5	0	0	0	0	0
Timeliness	13	65	5	25	0	0	1	5	1	2	1	5	5
Content	0	0	0	0	1	5	4	20	15	75	1	5	5
Format	1	5	0	0	2	10	7	35	9	45	1	5	5
Relative advantage	10	50	8	40	0	0	1	5	1	5	0	0	0
Trialability	12	60	5	25	0	0	1	5	1	5	1	5	5
Observability	13	65	4	20	0	0	2	10	0	0	1	5	5
Compatibility	15	75	3	15	0	0	0	5	1	5	0	0	0
Training	16	80	2	10	0	0	0	0	1	5	1	5	5

Attitudes toward Computers as a Function of Age, Education, and Duration of Employment

1- To test the hypothesis that older employees are less positive in their attitudes toward the use of computers in the workplace, the frequency of positive and negative attitudes was compared across the six age groups. It was found that older participants did indeed demonstrate a less positive attitude.

2- To test the hypothesis that respondents with less formal education will display a less positive attitude toward computers, the frequency of positive and negative attitudes was compared across the four levels of education. It was found that those with less education evidenced a less positive attitude.

3- To test the hypothesis that employees who have a longer tenure of employment at the workplace will display a less positive attitude toward the use of computers, the positive and negative reactions of employees were compared across the five categories of employment duration. Employees who had been employed for longer were found to show a less positive attitude.

Attitudes toward Factors within the Organisational, Cultural and User Satisfaction Themes

4- To test hypothesis number four, the perceptions of Kuwaitis and non-Kuwaitis towards HIS implementation were analysed. It was found that Kuwaiti employees have different perception toward HIS implementation to non-Kuwaiti employees

5- To test hypothesis number five, the perception of the different working groups towards the organisational themes that emerged from the qualitative stage were analysed. For instance, the MOH and top management at Al-Amiri hospital (public sector) strongly disagreed on the following factors: insufficient planning, uncertainty, lack of communication, top management computer literacy, bureaucracy, conflict of interest, lack of end users involvement, lack of effective leadership, lack of champion, lack of IT manpower, increased workload, and lack of competition. In addition, they strongly disagreed that their organisation used incentives to encourage system usage persuasion. However, they strongly agreed on formation of implementation team, resistance to change, resource allocation, organisational stability, and top management commitment. On the other hand, the end users of the public sector (Al-Amiri hospital) have different views in regard to this theme. However, within the private sector, Al-Mowasat top management and end users shared similar views in regard to this theme.

6- To test hypothesis number six, the perceptions of the different working groups towards the cultural theme were analysed. It was found that different working groups (professions) have different perceptions of the cultural themes that emerged from the qualitative stage. For example, MOH and the top management at Al-Amiri (public sector) believed that organisational diversity, accountability, and unhealthy competition had affected successful HIS implementation, while they disagree that low wages and language barrier had. On the other hand, end users (different professions) strongly agreed that low wages and language barrier had been factors of great influence that affected successful HIS implementation, while they strongly disagreed that the other cultural factors had, i.e., Organisational diversity, Accountability, and Unhealthy competition. In the private sector hospital, i.e., Al-Mowasat, top management and end users shared similar views in regard to this theme.

7- To test hypothesis number seven, the different perceptions of the user satisfaction theme that emerged from different working groups at the qualitative stage were analysed. It was found that the MOH and top management at Al-Amiri hospital strongly agreed on the following factors: Ease of use, Confidentiality, Timeliness, Relative advantage, Trialability, and Training. They strongly disagreed on the following factors: content and format. They chose the category “I don’t know” for the following factors: Observability and Compatibility. However, the end

users strongly disagreed on the following factors: Ease of use, Confidentiality, Timeliness, Relative advantage, Trialability, Observability, Compatibility and Training. They strongly agreed on the following factors: content and format. It was became clearly apparent that the end users were not satisfied with the system.

Part Two: Participants' Perceptions Regarding the Most Important Factors Influencing HIS Implementation

Table 7.47: Public Sector Perceptions Regarding the Most Important Factors Influencing HIS Implementation

MOH	Al-Amiri Top Management	Al-Amiri End Users
1. Accountability	1. Accountability	1. Lack of end user involvement
2. Resistance to change	2. Resistance to change	2. Insufficient planning
3. Organisational diversity	3. Organisational stability	3. Training
4. Organisational stability	4. Organisational diversity	4. Incentives
5. Incentives	5. Incentives	5. Uncertainty

Table 7.48: Private Sector Perceptions Regarding the Most Important Factors Influencing HIS Implementation

Al-Mowasat Top Management	Al-Mowasat End Users
1. Resistance to change	1. Ease of usage
2. Ease of usage	2. Timeliness
3. Competition	3. Incentives
4. Incentives	4. Relative advantage
5. Compatibility	5. Competition

Part Two: Respondents' Perceptions Regarding the Most Important Factors Influencing HIS Implementation

Similar answers were observed by the MOH and the top management (public sector) regarding factors within the cultural, organisational and user satisfaction themes. However, differences arose when both groups selected their top five influencing factors (Table 7.47). For example, the MOH selected, in order; accountability; resistance to change; organisational diversity; and organisational stability, i.e. in terms of changes in position in the top management; and Incentives. The top management in Al-Amiri hospital (public sector) selected accountability; resistance of change; organisational stability; organisational diversity; and incentives. The end users in Al-Amiri hospital (public sector) selected the following factors: lack of end users involvement; insufficient planning; training; incentives; and uncertainty of benefits.

On the other hand, in the private sector the top management at Al-Mowasat (Table 7.48) selected the following factors: Resistance to change; Ease of usage; Competition; Incentives; and compatibility. The end users selected the following: ease of usage; timeliness; incentives; relative advantage; and competition.

7.9 Summary

The aim of this study was to identify the various factors that may affect the success of HIS implementation in Kuwait's health care delivery system. Therefore the study was set out to first identify such factors, and secondly to describe the perceptions of the concerned stakeholders in both the private and public sectors, which necessitated the identification of all concerned stakeholders.

(Rajagopal, 2002:95) stated that:

“In qualitative studies researchers develop categories and meanings from data through an iterative process that starts by developing an initial understanding of the perspectives of those being studied and that particular understanding is then tested and modified through cycles of additional data collection and analysis until coherent interpretation is reached”.

To answer the questions presented by the study three methods of data collection were chosen. The study was conducted in three stages. The first two stages were qualitative and the third was quantitative. The methods used in the qualitative stage entitled a focus group and an interview. The information produced in the qualitative stage was used to develop the tool used in the second stage (i.e. the questionnaire). The aim of this study has directed the construction of the questionnaire's focus. The present research was exploratory in nature, and designed to give data about an area that has relatively little previous analysis, i.e., identifying

the factors affecting the successful implementation of HIS in Kuwait HCDS. In this approach, the questionnaire was given to the stakeholders. It included several questions about how they feel about the themes that have emerged from the qualitative stage.

The questionnaire was aimed at measuring the attitude of the respondents (i.e. the stakeholders who are top management and end users) in both the public and private sectors, towards preset factors with regard to their effect on the success of HIS in their respective organisations.

When examining the findings of the questionnaire, it can be noted the MOH, the top management and the end users in the public sector have generally different views and attitudes toward most of the factors studied, whereas they are more coherent in the private sector.

A detailed discussion of the findings of the current study is provided in the next chapter.

CHAPTER EIGHT

DISCUSSION

This chapter is divided into eight sections. Section one gives a summary of the findings obtained in the current study. Section two describes the limitations of the current study. The findings of the study are then discussed in detail in section three. Section four discusses the differences between public and private sectors in relation to factors affecting successful HIS implementation. The researcher provides a recommendation in section five. The contribution of the study to the field of HIS implementation is described in section six. Finally, section seven describes the future research that may be based on this study.

8.1 Summary of Findings

The findings of the study are presented according to the three research questions addressed in the current study.

Question One (Q1): Who are the different stakeholders concerned with HIS in the Kuwaiti HCDS (i.e. public and private sectors)?

The identification of the concerned stakeholders based on the definition accepted by this study is a logical process that progressed throughout the process of the study. The researcher examined the MOH chart

(Figure 2.2), Al-Amiri chart (Figure 2.3) and Al-Mowasat chart (Figure 2.4) in order to identify stakeholders.

Question Two (Q2): What are the factors that may affect the success of HIS implementation in the Kuwaiti HCDS (i.e. public and private sectors)?

Based on the literature review and the qualitative stage of this study three themes related to the factors that affect HIS implementation were identified. Those themes were organisational, cultural, and users' satisfaction.

The factors that are listed under each of these dimensions are presented in Table 6.1

Question Three (Q3): What is the stakeholders' perception of the factors affecting the successful implementation of HIS in the Kuwaiti HCDS (i.e. public and private sectors)?

To answer the question presented by the study was conducted in three stages. The first two stages were qualitative, and the third was quantitative. The methods used in the qualitative stage entailed a focus group and an interview. The information produced in the qualitative stage was used to develop the tool used in the second stage (i.e. the questionnaire). The aim of this study has directed the construction of the questionnaire's focus. Based on the findings of the questionnaire, it can be noted that in the public sector the MOH and top management have similar views whereas the end users have different views. On the other hand, the top management and end users have

similar views in the private sector. In general the MOH (public) ranked the following factors as the most important ones that affected the success of HIS implementation in their organisation: Accountability; Resistance to change; Organisational diversity; Organisational stability, i.e., in terms of changes in position in the top management; and Incentives. While the top management in the public sector (Al-Amiri hospital) ranked the following factors as the most important ones that affected the success of HIS implementation in their organisation: Accountability; Resistance of change; Organisational stability; Organisational diversity and Incentives.

The end users group in the public sector (Al-Amiri hospital) ranked the following factors as the most important ones that affected the success of HIS implementation in their organisation: Lack of end user involvement; Insufficient planning; Training; Incentives; and Uncertainty of benefits.

The top management in the private sector (Al-Mowasat hospital) ranked the following factors as the most important ones that affected the success of HIS implementation in their organisation: Resistance to change; Ease of usage; Competition; Incentives; and Compatibility.

The end users group in the private sector (Al-Mowasat hospital) ranked the following factors as the most important ones that affected the success of HIS implementation in their organisation: Ease of usage; Timeliness; Incentives; Relative advantage; and Competition.

8.2 Limitations

A review of the literature was conducted to generate a picture of what was known about a particular situation and the knowledge gaps that exist in the situation. This background enabled the researcher to build upon the works of others. The concepts and interrelationships of the concepts in the problem guided the researcher in selecting relevant theories and studies for review. Theories were reviewed to clarify the definitions of concepts and to develop and refine the study framework. Reviewing relevant studies enabled the researcher to clarify which problems have been investigated. In addition, the literature review directed the researcher in designing the study and interpreting the outcomes. A non-systemic review was used in reviewing the literature for general change management theories because the literature search found little evidence in the systemic approach. However, consultation with the librarian in the London School of Hygiene and Tropical Medicine and discussion with academics, management consultants and NHS managers were sought to identify key theories and concepts at general management texts and review.

Interviews were a form of self-report, and the researcher assumed that the information provided was accurate. Interviews required much more time than questionnaires and were more costly. Because of time and costs, the sample size was limited. Interpersonal skills can be used to facilitate cooperation and elicit more information. There is a higher response rate to

interviews than to questionnaires. Interviews allow collection of data from subjects unable or unlikely to complete questionnaires, such as the very ill or those whose reading, writing, and ability to express themselves are marginal.

To overcome all the aforementioned the researcher followed recommendations emerging from the study done by Dzurec et al (1995:245), which included the following:

- a) identifying one's agenda for conducting an interview and sharing it with the interviewer;
- b) staying in touch with the personal discomforts of the interviewer-interviewee relationship, for example, their disparate roles, knowledge levels, and health and social status;
- c) Allowing the interview to follow its own course, even if semi-structured by an interviewee format;
- d) Conducting retrospective analyses of interview data to guide subsequent interviews.

There were many cultural issues that affected the data collection process. As mentioned before (Section 5.5) the researcher, who is a Muslim Kuwaiti female, due to religious and cultural issues could not interview male participants without the presence of a third person such as her husband, brother or friend. This may be a problem because it may have stifled

conversation. However, the content of the interviews was on a sufficiently neutral topic however, given the cultural constraints.

Several interviews were conducted by the researcher while other persons were in the room. The stakeholder's responses may be dependent on his or her need to respond in ways expected by the other persons. However, the researcher could not do anything regarding this issue.

Unpredictable events were a source of frustration during the study. One such event was a tape recorder which jammed in the middle of the interview. Also one data collector (Section 6.4) discovered that the play button on the recorder had been pushed rather than the record button, leaving no record of the interview. These events were outside the control of the researcher and impossible to anticipate. However, notes taken during the interviews were used to supplement the findings of the interviews.

The qualitative researcher needs to think critically through the dynamic interaction between the self and data occurring during analysis. This interaction occurs whether the data are communicated person to person or through the written word. The critical thinking used to examine this interaction is referred to as reflexive thought or reflexivity (Lamb, 1991). "Reflexivity means sensitivity to the ways in which the researcher and the research process have shaped the data collected, including the role of prior assumptions and experiences, which can influence even the most avowedly inductive enquiries" (Pope et al., 1999:96). During this process, the researcher

explores personal feelings and experiences that may influence the study and integrates this understanding into the study. The process requires a conscious awareness of self. During the period of data collection and analysis the researcher and data collectors kept a personal research diary. Pope et al (1999: 96) said:

“They can and should make their personal and intellectual biases plain at the outset of any research reports to enhance the creditability of their findings”.

Although the researcher was careful not to influence the stakeholders' responses. Their knowledge of the study aim and hypotheses could influence their behaviour. This potentially created a threat to the validity or accuracy of the study. Study validity can also be threatened when the stakeholders guess the outcome of the study and change their behaviour to achieve this outcome (Cook et al., 1979). This problem is called hypotheses guessing, when the stakeholders change their behaviour based on what they think the researcher wants them to do or say. However, stakeholders were given a simple or vague explanation of study that did not include the study aim and hypotheses. Also, the researcher promised that at the end of the study, stakeholders would receive a complete description of the study and the findings.

The researcher's and data collector's skills in using a particular data collection technique can affect the quality of data collected. However, the researcher at the beginning of data collection practiced data collection

techniques with the assistance of an experienced researcher. Also a pilot study to test the data collection techniques was carried out.

Aday (1996:21) identified several key dimensions that define the survey approach:

1. A research topic or a problem of interest is clearly delineated;
2. Information on the issue is gathered by asking individuals questions;
3. The data collection process itself is systemic and well defined; the purpose of the study is to generate group level summary statistics; and
4. The results are generalisable to the group represented by the individuals included in the study.

However, there are several problems in consistency with questionnaires which can occur:

- a) Some subjects may asked the researcher to take the form home to complete it and return it later, whereas others will complete it in the presence of the data collector;
- b) Some subjects may complete the forms themselves, whereas others may ask a family member to write the responses that the respondent dictates;

- c) In some cases, the form may be completed by a secretary or colleague rather than by the individual. These situations lead to biases in responses that are unknown to the researcher and that alter the true measure of the variables.

In order to avoid these problems of consistency, the questionnaire was handed to the employee by the researcher or one of her assistants and the researcher made sure that participants completed the questionnaires in her presence (face to face). In addition, during the process of distributing the questionnaires the researcher and her assistances were available for three to five days in each selected setting, before moving to another location.

Participants were randomly selected when possible and care was taken in the selection process to cover different professions from management (top management) and none-management (end users) positions, as long as the participant was involved in the HIS implementation process. This, along with the fact that stakeholders' perceptions were taken from both the public and private sectors in the Kuwaiti HCDS, ensured the generalisability of the findings to the targeted population. However, measurement of attitudes or perceptions is a difficult process. The tool used for data collection, i.e., the questionnaire, although the most suitable in this case (Section 7.1), is not free of limitations. Each question in the questionnaire was vulnerable to differing interpretations by each participant.

Misinterpretation of parts of the questionnaire by some respondents can be expected, and may lead to some variation in scores. With this in mind, some bias might be expected. However, the researcher could not do anything about it.

Employees within the public sector do not feel as confident as they might and they also believe that the results will not be taken seriously. With this in mind, some bias might be expected. However, the researcher assured participants that data collected would be anonymous, that is, they could not be identified as the respondent in the qualitative and quantitative methods. The researcher would also respect the respondent's privacy when entering their personal sphere, and when asking questions. In addition, the participants were made aware of the importance of this study for identifying factors affecting successful HIS implementation.

Finally, the researcher sought to generate complex statistics that could be generalised to a larger target population. However, to examine the objectives it can be seen that this was exploratory and descriptive study. The purpose of descriptive research is the exploration and description of phenomenon in real life situations (Selltiz et al., 1976). Since descriptive studies are usually conducted when little is known about a phenomenon i.e. implementation of HIS in Kuwaiti HCDS. In addition, descriptive studies are means of discovering new meaning, describing what exists, determining the

frequency with which something occurs, and categorising information (Marriner, 1981), therefore no complex statistics were pursued.

8.3 Discussion of Findings

Since this study was done in a step wise fashion. The findings that will be discussed in this section were produced by the last step in this study, i.e., by the questionnaire.

Since this is an exploratory and descriptive study (Section 4.4), the aim of the discussion will be basically to explore the implementation process in Kuwait from the perspective of the different factors affecting successful HIS implementation as perceived by the concerned stakeholders.

This study, as it was pointed out in an earlier section, is the first of its type in Kuwait. While the literature provides rational justifications and substantiation in relation to some of the findings as they pertain to management principles, for most of the findings the researcher based the substantiation on her analysis of the findings. It will also be partly based on the framework that is drawn from the body of management of change and information systems implementation literature.

The discussion will attempt to set the scene for future studies in order to investigate the relationship between the different factors affecting successful HIS implementation as perceived by the concerned stakeholders and the actual implementation process in the Kuwaiti HCDS.

A. Demographic and Attitude Questions. Many different definitions of attitude have been proposed. In a general context, the term attitude is defined as a way of thinking or behaving towards a person or thing. In a system development context, the term user attitude should be used to refer to the psychological state reflecting the effective feelings concerning a new system (Barki et al., 1994). Bailey (1990) indicated that measuring and managing user attitudes toward various aspects of computer systems is an important part of making those systems effective. Burkes (1991) and Metzger et al (1993) emphasised that increasing familiarity of end users with computers, as they become more commonplace, should eventually lead to increased acceptance.

There have been many ways to monitor employees' attitudes toward HIS. One way suggested by Kjerulff et al (1988) is to administer an attitude questionnaire toward the specific computer system that was being implemented and an attitude questionnaire toward the computer system in general.

Reznikoff et al (1967) indicated that a favourable attitude increased with age and more education about computers. They also added that employees with less than 1 year or more than 10 years experience were less positive toward computers than those who had been employed 1 to 10 years. Friel et al (1969) did a study at a different institution which found similar

result that attitude is a function of age, professional training, and duration of employment.

Startsman et al (1972) administered an attitude scale to 338 physicians, paramedical staff, and students at one medical centre. Results showed that all groups were aware of less willingness to use the system than medical staff, medical students, and medical record librarians (Calhoun et al., 1989:2).

Melhorn et al (1979) replicated Startsman et al (1972) study. Some minor differences were found, but the overall results were similar to their study.

Kjerulff et al (1988) investigated employees' attitudes to training, length of service at the hospital, education, age, number of other hospitals previously worked at, attitudes to computers in general, and change orientation. They found that those who showed competence and confidence working with IS were more highly educated, had worked at the institution a shorter period of time, and had a more favourable attitude to IS in general (Calhoun et al., 1989:2).

On the other hand, Myers (1986) administered a longitudinal study of a computer project at Mississauga Hospital. He found that the attitudes of hospital staff toward technological change could not be predicted by age, sex, or staff level (Calhoun et al., 1989:2).

The current study was undertaken to obtain more comprehensive and definite information on possible contributing factors which affect attitudes to

the use of computers in the workplace and in turn affect successful HIS implementation.

The results of the current study showed that the majority of respondents exhibited a positive attitude to the use of computers in the workplace. However, even though the majority of responses were positive, the study revealed that those who are older, have less education, and who have been employed for a longer period of time have a less positive attitude to the use of computers in the workplace.

Reznikoff et al (1967) and Friel (1969) indicated an increase in favourable attitude with age (Calhoun et al., 1989). However; the results of the current study in regard to the relationship between the age and attitude toward computers contradict to the findings of these studies. On the other hand, Myers (1986) found no relationship between age and attitudes toward computers (Calhoun et al., 1989:7). The results of the current study showed an increase in positive attitude with the level of education, which corroborates the findings of Reznikoff et al and Friel (Calhoun et al., 1989). Kjerulff et al (1988) found a more confident and positive attitude toward IS amongst highly educated employees. In addition, the duration of employment on attitude toward computers was reported by the same studies (Calhoun et al., 1989:7).

B. HIS Implementation in the Public Sector. Based on the results of the attitudes of the respondents towards factors affecting HIS success in the first part of section two of the questionnaire (Appendix 7), it was found that

the respondents, as stakeholders in the MOH and top management in Al-Amiri involved in the process of HIS implementation, have similar views, while their views are different from the end users in this regard. Their views and attitudes towards the preset factors will be used here to describe the HIS in the public sector.

The following presentation refers to the cases in which the three groups of stakeholders (i.e. MOH, top management & end users in Al-Amiri hospital) agreed on the same choice, meaning they had the same attitude toward the factor in question.

As seen in section 7.8, the three stakeholders could not decide on whether the ‘Observability’ factor affected the system implemented in their organisation. This could be connected to the fact that since the system is only functional in a small part of the organisation (Section 2.3.2) the majority could not see the results or benefit by it.

The MOH, top management and the end users at Al-Amiri hospital strongly agreed that ‘Organisational diversity’ affected the HIS. Organisational diversity was concerned with the cultural background of the employees. Since they strongly agreed, this means that they did see the employees’ diverse background causing many problems for the system. Many scholars believe that organisations can be considered as pluralistic, that is, comprised of diverse groups such as nurses, physicians, managers, some of them immigrants, and a variety of ethnic origins, each with their own interests

and subcultures. Such diversity has the potential to be problematic because people who differ in these aspects are unlikely to share experiences and attitudes, or to fully understand one another (Schwartz et al., 1993).

In addition, employment of a variety of different medical specialists (specialisation) inevitably provides access to broader knowledge of new ideas, techniques, and products (Aiken et al., 1971). However, increasing the number of medical specialists most probably gradually generates complex problems of coordination and control (Kimberly et al., 1981:697).

It was found that the three groups had agreed that 'Organisational stability' was a factor of influence on the HIS. Meaning that they agree that frequent position changes in the top management in the organisation had affect HIS negatively. This was because the government appointed five ministers for the MOH during the last ten years. In Kuwait the policy changes with each new minister, due to pressure from the government and parliament to upgrade the quality of health care. Sometimes new minister have a political agenda to embed previous Minister's plans. Such agendas sometimes lead to open conflict with other groups within the MOH (conflict between supporters of the previous minister with supporters of the new one) thus leading to non-use of the system (Schneider et al, 1993; Bowers, 1995).

The following presentation refers to the cases in which the three groups of stakeholders (i.e. MOH, top management and end users in Al-Amiri

hospital) disagreed on the same choice, meaning they had the same attitude toward the factor in question.

It was found that the three groups chose to disagree whether ‘Incentives’ were used by the MOH in the public sector to encourage system usage.

In the cases where the three groups of the respondent chose different answers, three themes were identified.

Regarding the first theme, where one group chose a specific view toward the factor in question while the others chooses a more or less neutral one.

The first factor of this theme is ‘Conflict of interest’ among top management committees. The MOH and top management chose to strongly disagree, which either means that no conflict was present or it was there but did not affect the HIS implementation. The end users chose the ‘I don’t know’ choice probably because they really do not know what goes on in the MOH, being in a separate building away from the hospital, (Section 2. 3.2). Although the end users indicated in the interviews that conflict of interest between different parties within the public sector had affected usage, the majority of the end users chose ‘I don’t know’.

The ‘Resource allocation’ factor was also within this theme. The top management ‘Strongly agreed’ that this factor was an influence, whereas the end users chose ‘I don’t know’. Their choice may be based on the fact that the

end users were not involved in the early stages of the HIS implementation and therefore such information was not available for them. The end users indicated in the interviews that resource allocation was one of the main reasons for system failure.

With regard to the second theme, each group chose an opposing view toward the factor in question. First, the case where the MOH, and the top management in Al-Amiri hospital chose a positive attitude, and the end users chose a negative one, will be presented.

The first factor was 'Relative advantage'. The MOH and the top management strongly agreed that the HIS used in the organisation improves the users' way of doing things, probably based on their knowledge of the system they purchased. However, the end users strongly disagreed, which could be the result of the number of end users who used the system and believed that it did not improve their way of doing things, and the fact that the MOH and the top management did not use the system and therefore did not know what it could offer. Another interesting point was noticed with end users' responses for 'Ease of usage' and 'System quality' in terms of confidentiality, timeliness, content, and format. Only a few were satisfied with the system. This could mean generally lower system productivity.

One factor was 'Training'. The MOH and the top management strongly agreed that they provided the proper training needed, however, the end users strongly disagreed. Table 7.30 shows that within courses attended

by the end users group only 25% was focused on the HIS. Training of HIS users is an important stage of introducing a new system in any health organisation.

The other 'Compatibility' factor was also on this theme. This factor was in terms of 'end users' needs'. The MOH and the top management strongly agreed that the system used is compatible with the users' needs, whereas the end users strongly disagreed, showing great dissatisfaction with the system. This is due to the fact that the system forced them to change the work style that they have been using for many years.

Another factor is 'Trialability'. The MOH and the top management strongly agreed that the end users had an adequate opportunity to experiment with the system, whereas the end users strongly disagreed with that. This was very obvious, even in the interviews, discussed in chapter six. The end users revealed in the first part of the questionnaire that the introduction period ranged from one to two days. The end users showed dissatisfaction with the system and frustration whenever they used the system.

The 'Accountability' factor was strongly supported by the MOH and the top management at Al-Amiri hospital who felt that the organisation lacked regulations, whereas the end users disagreed. This was also expected based on the results of the interviews in Section 6.7. The pertinent explanations are offered below.

Regarding the 'Top management commitment' factor, the MOH and the top management see themselves as committed to the implementation of HIS whereas the end users strongly disagree with this.

The 'Formation of the implementation team' factor was strongly agreed upon by the MOH and the top management, whereas the end users strongly disagreed that such formation was undertaken to gather representatives of different stakeholders together to manage the implementation process.

Regarding the 'Resistance to change' factor, in terms of the existence of professional pride of some employees that may affect the adoption of HIS, the MOH and the top management agreed that it is a factor, whereas the end users disagreed. This could be because the end users blame the top management and the system, and not themselves.

Regarding the second theme, where the top management had a negative attitude and the end users a positive one, the first factor was the 'Increased workload'. The MOH and the top management strongly disagreed that HIS increases workload, whereas the end users strongly agreed with that. The relationship between increased workload and shortage in staff is that it is logical to assume that if there are enough staff then there will not be any increase in the workload. However, if the organisation is suffering from a shortage in staff then the new system will certainly be associated with increased workload. This may mean that the MOH either does not assume that

there is a shortage of staff or that it does exist but does not pose a problem with regard to HIS implementation. On the other hand, the end users strongly agreed that the increased workload is a consequence of shortage of staff and affects HIS success, which suggests that the problem exists.

Senior stakeholders (MOH and top management) strongly disagreed that 'Language barrier' was a factor affecting HIS implementation. The MOH and top management in Al-Amiri hospital strongly disagreed, probably because most of the MOH and top management in Al-Amiri hospital employees are Kuwaitis and therefore speak the same language. The majority of the end users strongly agreed because it is a big problem for those who speak only one language and need to communicate with other co-workers who speak another language.

The 'Bureaucracy' was strongly disagreed by the MOH and the top management as a factor that affected HIS success. This may mean that the top management perceive the bureaucratic system they have as an efficient one. However, the end users strongly agreed that this was a factor that affected the success of the system, showing their negative perception of the bureaucratic system of the MOH.

Regarding the 'Lack of leadership' factor, the MOH and the top management strongly believes that they provide supportive leadership in the organisation. The end users strongly disagree with that, meaning they believe

that a supportive leadership was absent in the organisation during system implementation.

'Insufficient planning', in terms of top management decision making, and 'Top management computer experience' were strongly disagreed by the MOH and the top management in Al-Amiri hospital as factors. This suggests that they strongly believed that their decision making was sound and that they had the necessary computer experience to take decisions they made. The end users strongly disagreed believing that MOH decision making was of poor quality and that MOH lacked the computer experience to make decisions regarding HIS. When compared to the earlier views of the end users, especially with 'System Quality' factors, i.e., Ease of use, Confidentiality, Timeliness, Content, and Format, it was found that the end users were not satisfied with the system.

The same contrary attitudes were seen in both groups in relation to 'Lack of communication' between top management and end users; and 'End user's involvement'. The two factors are related. The fact that top management strongly disagrees that the MOH lacked a committee of users to solve problems with HIS and report to the top management means that they believe that the end users were involved in the system implementation process. If there was end user involvement, it seems that it was not sufficient for the end users since they strongly agreed that the MOH lacked sufficient end user involvement and strongly disagreed with the level on involvement

they were allowed any. End users' participation in development is generally considered to be positively correlated with satisfaction (Lucas, 1971). End users who participated in the system development process were likely to develop beliefs that a new system is good, important, and relevant to their work. However, the weak correlation between user participation and end user satisfaction does not support this contention (Ives et al., 1980). However, in the state of Kuwait, there is limited awareness of the importance of participation of end users in the development of the system.

The last factor questioned was the 'Competition' factor. The top management disagreed with the idea that the lack of competition in the public sector was a factor that affected HIS success, whereas the end users strongly agreed that this was a factor that affected the success of HIS implementation in their organisation.

In the second part of section two in the questionnaire, the respondents pointed out five main factors affecting HIS implementation success. It is worth noting that there was no one factor that could be identified as the sole factor causing problems or resistance. All factors are interrelated and interdependent. These factors will be discussed in the following section explaining how they are interrelated with the other factors involved in the HIS implementation process.

MOH Ranking of Factors Affecting Public Sector HIS

Implementation. The MOH chose 'Accountability'; 'Resistance to change';

‘Organisational stability’, i.e., in terms of changes in position in the top management; ‘Organisational diversity’; and ‘Uncertainty’ as the factors affecting HIS implementation success.

An examination of the results of the questionnaire on the most important factors affecting the success of HIS implementation in the public sector by the MOH (public) and a review of the results produced by the focus group in section 5.8, and of interviews in section 6.7, shows similar findings.

The top management in the public sector seem to be confident in their selection of the HIS in terms of its quality. They seem to think that the main problem lies with the end users or the way the MOH is organised and operates. These two factors seem to be related. From the top management perspective, with regard to the MOH, they think that they lack an active policy and regulations to hold the employees (i.e. end users) accountable for their actions. They believe that this loose system of accountability causes system failure. Another point with regard to the MOH itself is the frequent position changes that occur in the Ministry, which results in discontinuity with regard to commitment to the implementation process. They selected this, i.e., ‘Organisational stability’ in terms of changes in position in the top management, as a factor, for the way the Ministry functions. This was in preference to choosing ‘Top management commitment’ which was defined as ‘Top management in your organisation was committed to the process of implementation from it’s beginning to the end’.

With regard to blaming the end users, all of the other factors chosen by the top management, i.e., the 'Resistance to change'; and 'Uncertainty' substantiate this point of view.

Top Management Ranking of Factors Affecting Public Sector HIS implementation. Al-Amiri top management shared similar views to MOH.

End Users' Ranking of Factors Affecting Public Sector HIS Implementation. The end users chose 'Users' involvement'; 'Compatibility of training'; 'Trialability'; 'Uncertainty of benefits'; and 'Insufficient planning', i.e., in terms of decision making by top management, as the most important factors affecting the success of HIS in the public sector.

Based on the results of the questionnaire, it seems that the main problem with HIS implementation in the public sector of the Kuwaiti HCDS is the lack of users' involvement in early stages of the implementation process. This factor was chosen as the most important factor by the end users in the public sector affecting the success of HIS implementation. However, as mentioned earlier, all factors are interrelated and interdependent, which is the case with this factor and the rest of factors chosen by this group.

Research indicates that employees' level of resistance is related to the degree of participation that they have had in the organisation's decision making. The lack of users' involvement causes lack of knowledge of their needs by the decision makers and top management. User participation has

been found to influence subsequent levels of both involvement and positive attitude (Ives et al., 1984). Through participation, users may be able to influence the design of a new system, satisfying their needs. They may develop a better understanding of the new system and how it can help them in their job.

C. HIS Implementation in the Private Sector. The following presentation refers to cases in which both groups of stakeholders (i.e. top management & end users) agreed on the same choice, meaning they had the same attitudes toward the factor in question.

Both stakeholders strongly agreed with the 'Relative advantage' factor, meaning they both believed that the HIS used in their organisation improved the user's way of doing things. They also strongly agreed with the 'Training' factor and 'Compatibility' in terms of users' needs, meaning that the HIS used was compatible with users' needs. Both groups strongly agreed that the organisation provided the opportunity to experiment with the system prior to implementation, hence the 'Trialability' factor. Both groups found the system to be user-friendly, i.e., the 'Ease of usage factor'. They also strongly agreed that the benefits and results of the HIS were observable by others in the organisation, i.e., 'Observability' factor. Both groups also strongly agreed that the top management was committed to the HIS implementation process from its beginning, i.e., 'Top management commitment' factor. This indicated that compared to the public sector, the top management and the end users in the

private sector seem to have a healthier relationship. It also obvious that they had better communication since both agreed that, in their organisation, a team of different stakeholders was formed which had the responsibility to manage the whole implementation process (i.e. 'Formation of implementation team'). Regarding 'System quality', in terms confidentiality, both groups strongly agreed that the system improves the confidentiality of information in their organisation.

Both stakeholders disagreed about the factor of 'Language barrier' as affecting HIS implementation. The case here may be different than it was in the public sector. That is because in the public sector both groups, MOH and the top management at Al-Amiri hospital, disagreed with this factor, probably based on the fact that most of the MOH and the top management employees are Kuwaitis (Table 7.5) and therefore speak the same language, while the end users were non-Kuwaitis and not all of them speak good English. However, this is not the case in the private sector (Al-Mowasat Hospital) where the majority of the employees are not Kuwaitis; however, the majority of the employees had a good command of both Arabic and English.

As explained earlier, in the cases where the two groups of respondents chose different answers, four themes were identified.

Regarding the first theme, it was found that both groups had strongly agreed or agreed that incentives were used to as a persuasion mechanism to encourage system usage, i.e., the 'Incentives'. Both groups had a positive

attitude toward the 'System Quality' factor in terms of timeliness, meaning that the needed information is provided by the system within an acceptable time.

Regarding the second theme, it was found that both groups chose to strongly disagree or disagree with six factors. The top management and end users' choices were similar, showing the faith the top management had in their decision and the satisfaction of the end users with their organisation. Therefore, it can be seen that both disagreed with the view that changes in the top management had affected the HIS implementation process, hence the 'Organisational stability' factor. Then there is the 'Accountability' factor in terms of the rules and regulations that provide an active punishment-reward system. Both groups had a negative attitude towards the 'Insufficient planning' factor in terms of top management decision making quality, and also 'Top management computer literacy'. These two factors in addition to 'End user involvement', which also fell within this theme, seemed to be the most contributing factors to the success of HIS in the private sector when compared to the views of the respondents in the public sector, as will be discussed later in this section. The last two factors within this theme are concerned with 'System quality' in terms of 'Format' and 'Top management resistance to change'. This shows that both groups agreed that the system in their organisation provided the various formats needed.

Regarding the third theme, one group had a specific view toward the factor in question, while the other had a more or less neutral one. The top management thought that there was no 'Conflict of interest' present among the different committees at their level that might have affected HIS implementation success. They also thought that the resources allocated to the HIS were not limited ('Resource allocation' factor).

Top Management Ranking of Factors Affecting implementation in the Private Sector. The top management chose the 'Resistance to change', factor with regard to decision making quality, as the most important factor affecting HIS implementation. They believed that resistance to change by users was the most important factor that may affect the adoption of the system in their organisation. Secondly they saw 'Ease of use' as an important factor. The third most important factor was 'Competition', i.e. the belief that the existence of rival organisations provides an edge to look for ways to be the best in the market. The fourth factor chosen by the top management in the private sector was 'Incentives'. They saw incentives as persuasion mechanisms that aids in convincing users to adopt HIS (i.e. change). In general, the top management choices of the factors that they perceived as the most important ones affecting the success of HIS implementation differ from those chosen by their counterparts in the public sector. The latter were critical of top management decision making, believing that good decision making affects the success of the process. They believe that the system must be user

friendly, and the users must be persuaded to use it, by being given incentives. They also appreciate the existence of competition from rivals in the market which gives them a reason to seek quality-something the public sector lacks and its top management does not seem to appreciate.

End Users' Ranking of Factor Affecting Implementation in the Private Sector. The end users in the private sector chose 'Ease of usage' and 'Timeliness' as the most important factors affecting successful HIS implementation. They also chose most of the 'System Quality' sub categories, i.e., Content, Format, and Timeliness as important factors affecting the success of HIS. In addition, they chose 'Incentives', and agreed with their top management that incentives were a persuasion mechanism that helped in making HIS implementation successful. 'Relative advantage' was also chosen as a factor, meaning that the end users believed that the new system must improve the way things are accomplished in the workplace for the system to be successful. Finally, they chose 'Competition' as a factor of great importance.

8.4 Comparison between the Public and Private Sectors

In order to pull together the key findings of this study, a comparison of the public and private sector respondents' demographics and views on factors affecting successful HIS implementation is tabulated by stakeholder type in tables below. Please note that the views of the MOH were compared with those of top management in the private sector. This is because of the different roles played by top management in the public and private sectors: i.e., in the public sector, the MOH is the authority responsible for all decision making regarding HIS, and the top management at the public hospitals have no effect on the process of HIS implementation, unlike their counterparts in the private sector. Accordingly, the views of public sector top management were regarded as stakeholders because the researcher viewed them as a party that may influence the success of HIS implementation.

There are differences in responses and views on HIS implementation for public sector versus private sector (Tables 8.1, Table 8.2 and 8.3). There are many potential reasons for the differences observed. This section will present these comparisons between public versus private top management and public versus private end users.

A. Public versus Private Top Management. By examining Table 8.1 and 8.2, it can be seen that the top management of each sector has different

perceptions towards the kind of factors that may affect the success of HIS implementation.

Top Management in the Public Sector. In the public sector, the top management view “Accountability” as the first factor. Furthermore, this factor was only viewed as an affecting factor on HIS implementation by those in public sector top management. This could be explained by the lack of active rules and regulations in the hospitals as mentioned in the qualitative stage i.e. Interviews (Section 6.7). During the interviews, it was alleged that although ample rules and regulations existed they were not enforced on Kuwaitis. However, by examining Table 8.1 it can be seen that non-Kuwaitis constituted the majority of employees in both the public and private sector.

The second factor emphasised by the public sector top management was “Resistance to change” (Table 8.3). This factor was chosen as the first one that may affect the success of HIS implementation in the private sector. They both agree on this factor.

The choice of this factor by the public sector top management could be explained by reviewing Section 5.8 and Section 6.7, in which the top management blamed the end users as being from the ‘old school’, meaning they do not believe in modern technology. However, in Table 8.1 it is shown that most of the end users (73%) were of a graduate level of education and most of the end users age group was 30-40 (35.2%). When examining the

private sector it can be seen that a much lesser percentage of their employees (35%) were of graduate level of education and 45% were 30-40 years of age. This further challenges the notion mentioned in the previous part regarding the lack of knowledge and communication between the top management and end users of the public sector. With regard to the private sector the most obvious reason for the choice of this factor is that it is generally believed that any change, i.e. HIS implementation, may be faced with resistance (Section 3.2.11).

The third factor viewed by the public sector top management as a factor affecting success of HIS implementation was “Organisational diversity”. By examining Table 8.1 it can be seen that the public and private sector demographics are somewhat similar, except for the following categories: Sex, Arabic proficiency and Number of patients seen in an average week. All of these categories could be seen as legitimate explanations as to why top management in the public sector would view “Organisational diversity” as a factor affecting HIS, while the top management in the private sector would not. With regard to sex, as mentioned in Section 5.6, females constitute 76.4% of the public sector employees, whereas in the private sector only 35% were females. This percentage of females may pose a problem with regard to cultural issues that women in this culture may experience. This is not the case with the private sector since males constitute a larger percentage.

Arabic language proficiency may constitute a problem in the form of a language barrier. It can be seen that public sector employees speak Arabic to an average level of proficiency, whereas this is not a problem for employees in the private sector, who have an excellent language proficiency in Arabic.

The number of patients seen in an average week (i.e. workload) is a factor that can be very easily understood in terms of why it might cause problems. This issue is not as pronounced in the private sector, with a lesser load of patients seen per week.

The fourth factor that the top management in the public sector view as an affecting one on HIS implementation is “Organisational stability”. The researcher also regards this as another legitimate factor. As mentioned in section 6.7, the history of MOH shows a degree of instability in management that affects the long term commitment needed for projects such as HIS to succeed in the long run. This factor does not constitute as much of a problem for the private sector.

Table 8.1: Comparison between Public and Private Top Management in Relation to Demographics

Demographics	Public (Top management)	Private (Top management)
Sex	Males (57.5%)	Males (85.7%)
Age group	30-40 (30%)	30-40 (57.14%)
Nationality	Kuwaitis (95%)	Non-Kuwaitis (71.42%)
Education level	Under-Graduate (37.5%)	Graduate (57.14%)
Arabic language proficiency	Excellent (100%)	Excellent (85.71%)
English language proficiency	Good (52.5%)	Excellent (71.42%)
Number of years in current work	6-10 years (18%)	1-5 years (42.85%)
Number of years of HIS usage	0 (100%)	1-5 years (43%)
Overall attitude towards computers at work	I like to use computers (72.5%)	I like to use computers (100%)
Training classes attended	On the job (47.5%)	On the job (100%)

Table 8.2: Comparison between Public and Private End Users in Relation to Demographics

Demographics	Public (End User)	Private (End User)
Sex	Females (76.4%)	Males (65%)
Age group	30-40 (35.2%)	30-40 (45%)
Nationality	Non-Kuwaitis (89%)	Non-Kuwaitis (75%)
Education level	Graduate (73%)	Graduate (35%)
Arabic language proficiency	Average (41%)	Excellent (70%)
English language proficiency	Excellent (46.8%)	Excellent (80%)
Number of years in current work	6-10 years (46%)	6-10 years (55%)
Categories of job position	Medical doctors (34%)	Medical doctors (20%)
	Nurses (31.5%)	Nurses (20%)
	Clinical technician (14%)	Clinical technician (10%)
	Technicians (9%)	Technicians (10%)

	<p>Supervisor (4%)</p> <p>Clerk (3.6%)</p> <p>IT specialist (2.7%)</p> <p>Head of clinical department (2.27%)</p>	<p>Supervisor (10%)</p> <p>Clerk (10%)</p> <p>IT specialist (10%)</p> <p>Head of clinical department (10%)</p>
Number of patients in an average week	25 or more patients/ week (60.4%)	16-20 patients/week (60%)
Number of years of HIS usage	6-10 (63%)	6-10 years (60%)
Overall attitude towards computers at work	I like to use computers (72.5%)	I like to use computers (100%)
Training classes attended	On the job (47.5%)	On the job (100%)

8.3: Top Management in the Public and Private Sectors Views

Public (Top Management)	Private (Top Management)
1. Accountability	1. Resistance to change
2. Resistance to change	2. Ease of usage
3. Organisational diversity	3. Competition
4. Organisational stability	4. Incentives
5. Incentives	5. Compatibility

8.4: End Users in the Public and Private Sectors View

Public (End Users)	Private (End Users)
1. Lack of end user involvement	1. Ease of usage
2. Insufficient planning	2. Timeliness
3. Training	3. Incentives
4. Incentives	4. Relative advantage
5. Uncertainty	5. Competition

The top management of both public and private sectors agree on the fifth factor, i.e. “Incentives”, as an affecting factor on HIS implementation. The differences between their views are that in the public sector there was no incentive to use the new system or change the employees’ old ways of doing routine work, whereas in the private sector the top management indicated that (as mentioned in Section 5.8) incentives were used to encourage system usage. In addition, employees receive rewards and verbal acknowledgement for outstanding work.

Top Management in the Private Sector. By examining Table 8.3, it will be seen that the first factor chosen by the private sector top management was “Resistance to change”. This was discussed earlier in the previous section.

The second factor chosen by the private sector top management was “Ease of usage”. It can be easily understood why this factor was not chosen in the public sector because HIS was rarely used by the top management in that sector. The private sector top management appreciates the effect of this factor because the system used in their sector went through many improvements to take its current shape and status. Thus, with every improvement, the system becomes more accessible and user friendly.

The third factor viewed by the private sector top management was “Competition”. This factor applies to the private sector by its very nature. The private sector hospital is a for-profit organisation that has many rivals competing with it. This for-profit nature of the private sector enables it to focus its attention on providing services to its customers, and, of course, it means that the private sector hospital is also concerned about increasing its profitability. The benefits of successful HIS implementation represent one way in which a private sector organisation may gain an advantage over its competitors in the market. This factor does not apply to the public hospital, because it exists in a non-competitive environment.

The fourth factor chosen by the private sector top management was “Incentives”. This was also discussed earlier in the previous section.

The fifth and last factor viewed by the private sector top management was “Compatibility”. This factor was chosen because in the private sector – unlike in the public sector – HIS is already in use. Accordingly, the private sector appreciate the effect of this factor has on successful system implementation. In the public sector, “Compatibility” is a factor that has been all too easily overlooked when the system is developed. This relates again to the notion that end users in the public sector were not involved when the system was developed (Section 2.3.2, Section 5.8 and Section 6.7). Their needs were not assessed, thus “Compatibility” was not measured. By contrast in the private sector the end users were made a part of the early stages of

system development, where their needs were assessed and the system was made compatible with the end users' needs. As with the "Ease of usage" factor, this resulted in a more successful HIS implementation.

B. Public versus Private End Users. By examining Table 8.4, it can be seen that the end users of each sector have different perceptions of the kind of factors that may affect the success of HIS implementation.

End Users in the Public Sector. The first factor chosen by the public sector end users was "Lack of end user involvement" (Table 8.4). This factor was not chosen by the private sector end users, because they had been involved with the system development. As mentioned in Section 2.3.2, Section 5.8 and Section 6.7, public sector end users were not involved in this process.

Tables 8.1 and 8.2 show that most of the top management were Kuwaitis (95%) and their level of education was undergraduate (37.2%), whereas the situation amongst the end users is reversed: 89% were non-Kuwaitis, and 73% were graduates. This is not the case in the private sector, where both the top management and the end users were mostly non-Kuwaitis (71.43% and 75% respectively) and their level of education was of graduate standard (57.14% and 35% respectively). As mentioned in Section 2.2.5.5, expatriate employees (end users) generally have far better capabilities and much more experience than their Kuwaiti managers. These differences created a gap between the top management and end users in the public sector, which

in turn caused a lack of communication. This lack of communication has a three-fold effect.

The first effect is on the top management's quality of planning and decision making process. As explained by Rogers, the decision making process begins with knowledge of the innovation, followed by a period of persuasion. In the persuasion period, adopters tend to gather information related to the innovation to convince the user population about the advantages/benefits of the innovation. A decision to either adopt or reject the innovation follows the persuasion period. If a decision is reached to adopt the system, then the implementation period begins. This period is critical in the diffusion process since it requires action on the part of adopters as the new idea is put into practice. Finally, there is a confirmation period seeking reinforcement of an innovation-decision that has already been made (Rogers, 1983). Therefore, it can be seen that lack of user involvement causes poor planning quality, ineffective persuasion efforts, resistance and probable implementation failure.

The second effect is that the lack of decision makers' and top management's knowledge of users' needs (due to lack of user involvement) affects the appropriateness of training courses. The trial and training period allowed to the users affected, to a great extent, their general satisfaction with the system. HISs are usually complex and need a proper trial period. Trialability reduces uncertainty and greatly increases the rate of adoption

(Rogers, 1983). Availability of training was positively correlated with the extent of implementation of innovation. The need for a proper induction programme and for in-service training should also be noted. The administrators need to build the necessary mechanisms to ensure that, besides the induction programmes, in-service training is provided to all employees. Therefore, inadequate training causes dissatisfaction, resulting in resistance.

The third effect is that the lack of decision makers' and top management's knowledge of users' needs (i.e. based on lack of users' involvement) results in uncertainty on the part of the users as to the benefits of the HIS. This by itself is reason enough to cause resistance.

It is logical to assume that users' involvement promotes 'Ownership' of the new system by the users. This makes the users more comfortable with system usage and increases their satisfaction. This also reduces the amount of uncertainty users perceive, and gives them a sense that the system is compatible with their needs, which may have a tremendous affect on implementation success. Therefore, encouraging the user to participate in the design, implementation, and evaluation can develop feelings of 'Ownership' and commitment to the new system. Users who participate in the development process are likely to develop beliefs that the new system is good, important and personally relevant. In summary, then, the potential benefits of involving end users, and the potential consequences of failing to consider their needs,

collectively underline the importance of this first factor, “Lack of end user involvement”.

The second factor that was chosen by the end users in the public sector was “Insufficient planning”. In qualitative stage, i.e. Focus group and Interviews, and indeed in the previous section, it became apparent that just as top management blame end users for failures in HIS implementation, so too the end users in this sector view insufficient planning on the part of top management as a factor contributing to the failure of HIS implementation. (In fact, it seems that these two groups exchange the blame between them). This once again suggests the existence of a gap, a miscommunication and a mutual failure to appreciate the knowledge held by each party. This factor is not viewed as an important one by the private sector end users, because their input was considered and they were a big part of the early stages of the system development i.e. Planning (Section 2.3.2).

The third factor that was chosen by the end users in the public sector was “Training”. When reviewing Table 8.2 it can be seen that 100% of the users in the private sector were trained to use HIS, whereas only 47.5% of the end users of the public sector took training courses. It is worth noting that, as mentioned in Section 7.8, such courses were not even properly compatible with the system that had been imposed on them. The training that they were given was merely introductory computer skills. This factor is related to the previous one - “Insufficient planning” - and also strengthened the researcher’s

theory regarding the existence of a big gap between the end users and the top management in the public sector.

The fourth factor that was selected by the end users of both sectors was the “Incentive” factor. It is clear why end users view incentives as an encouraging factor to use the HIS, and why this would contribute to the system’s success. However, no incentives of any kind were given to the end users to encourage them to use the system. It is odd that the top management in the public sector did not introduce any such incentives to stimulate uptake and use of the system amongst the end users. It seems as though the top management failed to learn any lessons from the previous unsuccessful attempt at HIS implementation. This explanation agrees with the statement that the end users made (Section 5.8) regarding the way the top management purchased the HIS and imposed it on them.

The fifth factor viewed by the end users of the public sector was “Uncertainty of benefits”. As was argued in Section 5.8 and 6.7, it is not unreasonable that end users should view uncertainty of benefits as an important factor affecting HIS implementation because this factor could well be the result of the effects of the previous factors. If end users were not involved (the first factor) , top management insufficiently planned the system implementation (the second factor), end users were not properly trained (third factor), and no incentives were given to use the system (the fourth factor) , all this will result in a feeling of uncertainty about the benefits this new change

(HIS) will provide. This uncertainty may result in resisting the change, and potentially in failure of HIS implementation (Section 3.2.11).

End Users in the Private Sector. Most of the factors chosen by the end users of the private sector are related to their experience with the system which is currently active.

The first factor chosen by the private sector end users was “Ease of usage”. This factor was chosen by the private sector end users because they believe that the system was user friendly: it was easy to perform data entry, and flexible in shifting from one screen to another as mentioned in Section 5.7 and Section 6.7. The end users of the public sector did not view “Ease of use” as a contributing factor because, as mentioned in Section 5.7 and Section 6.7, those who actually got the opportunity to work with HIS found it to be difficult and not user friendly.

The second factor chosen by the private sector end users was “Timeliness”. This factor is also associated with “Ease of usage”. As mentioned in Section 5.7 and Section 6.7, participants from the private sector indicated that the system allowed them to accomplish their tasks easily and in less time. In addition they believed that using the system enhanced effectiveness of work performance, enhanced quality of care provided improved communication among the health care team, improved documentation practice, and increased productivity levels due to better access

to complete and accurate information. On the other hand, the public sector end users did not view this as a contributing factor to HIS implementation success.

The third factor – “Incentives” – was discussed in the previous section.

The fourth factor chosen by the private sector end users was “Relative advantage”. “Relative advantage” is defined by Rogers as: “The degree to which the innovation represents an improvement over prior ways of doing things” (Section 3.2.8).

The choice of this factor is related to the first two factors emphasised by the end users in this sector. By contrast, the end users in the public sector did not see any advantage in using the system, no doubt owing to their lack of involvement and other factors.

The fifth factor that was chosen by the end users in the private sector was “Competition”. Once again, this is perhaps an obvious choice in the private sector, for the same reasons for which it was chosen by the top management in the private sector. That is, “Competition” drives the private hospital to succeed in the marketplace and to make the projected profit. This factor does not exist in public sector hospitals in Kuwait.

8.5 Recommendations

In view of the discussion chapter, the following recommendations are offered with a view to optimising the success of a future HIS implementation process in Kuwait.

As the literature shows, change in general is difficult to implement and maintain. Leaders have long recognised that change is difficult. For example, back in the 16th century, no less an advisor than Niccolo Machiavelli warned leaders that:

“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things”.

One way to emphasise the need for change in order to minimise resistance to it is by involving employees in the strategic planning process. Information gained during strategic planning not only illustrates the needs of users, but, no less importantly, it illustrates the needs of users to the users themselves. Thus, strategic planning allows employees to discover for themselves the need for change. Strategic planning also focuses change on overarching goals. Managers, through the strategic plan, can provide one focal point for all change efforts.

Managing change may be the greatest challenge that HIS professionals face. Ongoing changes in delivery, finance, and the technologies of healthcare are transforming the work environment. These changes compel HIS

professionals, as managers, supervisors, and employees, to make significant adjustments in how they practise. The increasingly dynamic environment of healthcare requires that HIS professionals continually implement changes in HIS strategy, structure, and process.

Identifying the reasons for resistance should help the manager develop strategies that address the problem directly, for example, in-service education begun well ahead of implementation can alleviate inaccurate perceptions and help employees realise how the new system can help accomplish both users' and wider organisational goals.

User involvement has often been suggested as one method of improving the quality and acceptance of Information Systems (Lucas, 1971; Lucas, 1973). These suggestions are based on the benefits of participation in encouraging the acceptance of change, particularly when changes affect work groups (Lawler et al., 1970). The modern hospital is responsible for many stakeholders. The number of stakeholders related to large hospitals more than doubled between the late 1950s and 1990s. Ash (1997b) identified at least 19 stakeholders in a typical large hospital. There were 10 types of stakeholders whose power was increasing. As power increases among various stakeholders, decision making processes are likely to involve extensive negotiations and more efforts at consensus building. The distribution of power among numerous stakeholders results in significantly more input, which complicates the ultimate choice and design of IT investments.

Many researchers claimed that users who are active participants in the system development process are more likely to establish a feeling that the system is good. Participants become acquainted with the new system. Their uncertainty and fear is alleviated through the participative process. HISs which are thought to be both important and personally relevant to users are more likely to result in positive effective or evaluative feelings of the users. Similar supports for this argument can be drawn from relevant research in other disciplines. Persons who are highly involved with an issue have been found to process more favourable attitudes towards the issue (Sherif et al., 1965). In marketing, customers who are highly involved with a product have been found to develop more positive feelings toward this product (Petty et al., 1983; Gardner et al., 1985). Organisational behaviour research shows that employees who are highly involved with their jobs have been found to appreciate their jobs more (Kanungo, 1982).

Any change involving reorganisation to make better use of new IT may require the approval of at least several of these stakeholder groups. In addition, investments in new hardware and software will require approval from many of these stakeholders, and standardisation of database and system requirements becomes exponentially complex. Thus, to achieve consensus on the introduction of new IT, the top management will have a major task in finding the most useful and appropriate technologies, trying to estimate

cost/benefit rates, and raising support- or at least ensuring having neutral reactions -from all constituencies.

The reason why many change efforts fail is that managers pay insufficient attention to the “unfreezing” process prior to making a change (Lewin, 1951). Time and effort invested at this stage may prevent employee resistance later. This preparation frames change positively, so managers lead change rather than reactively monitor for resistance.

Timing the introduction of HIS with a perceived need for improvement can help. The top management may want to take a gradual approach. Introducing the new system in stages that evolve as the users become more comfortable with it is more time consuming, but also more cost-effective and successful.

User acceptance of the HIS is critical to success. Managers should provide opportunities for employees to voice their fears and misconceptions from the beginning of the implementation process. A manager who believes that the end users are hesitant or reluctant to voice their concerns should consider introducing a neutral third party to whom these concerns may be addressed more freely and easily. The end users’ fears and concerns must be assessed and confronted throughout the process. If the staff have ambivalent feelings toward the HIS, they are sure to find a way to resist it, especially if they believe that their concerns have been ignored.

Managers within the MOH must clearly communicate the need for change. They should also describe the new desired behaviour. Employees affected by change must understand both *why* this change is necessary and *how* they are being asked to change. Comprehension of change is the first step towards acceptance. The critical role of senior management in ensuring the success of HIS implementation is an issue that has been given a lot of attention by academics and practitioners alike. Adams (1963) claimed that successful HIS implementation depended on the active and informed participation of top management. Nath (1989:72) also noted the importance of top management commitment stating that:

“A lack of interest of senior management in the IT implementation is one of the signs of misalignment of IT and business strategy”

Furthermore, a study by Jarvenpaa et al (1991) which surveyed 55 Chief Executives Officer (CEO) found that companies where the CEO participates in the management of IT are more progressive and advanced in their IT usage and impact. In many organisations the top management serves as the link between the organisation strategy and IT (Watson, 1990). Whilst IT literature has always emphasised the need for top management commitment for successful HIS implementation, there has been a lack of empirical evidence that undeniably proves the value of top management commitment (Sohal et al., 2002:109). Furthermore, whilst a lot of emphasis has been placed on top management commitment, the impact and value of

the confidence of middle managers in IT initiatives is also of prominent importance to the eventual impact that IT has on organisation. The Sohal et al (1996) study again showed that respondent viewed this as a critical success factor. Alter (1998) stated that IT programmes need executive support to simply survive, however, it is at the middle and lower levels where an implementation is won or lost. Finally the Sohal et al (1996) study also provided some insight into what IT managers view as factors critical to the adoption of strategic IT in their organisations. The leadership factor could be viewed as a subset of management commitment, however, user training and support as well as organisational communications were also noted as key organisational factors deemed critical to the successful implementation of IT.

Resistance to change can be a sign of poor leadership and ineffective management practices. Leadership has generated a vast body of research in both scholarly and popular literature. Researchers have attempted to understand the social, psychological, political and cultural processes that affect leadership behaviour; the effect of leadership on organisations, the potential entity, and a society as a whole; and the conditions that affect the attribution and maintenance of leadership status. Burns (1978:56) indicated that:

“Leadership is arguably the single most important factor that influences organisational effectiveness. The effects of a leader’s actions are mediated by the interaction of situational variables,

including the task, the core technologies, and the characteristics of the followers”.

He also added that:

“Effective leaders understand their organisational culture and fit within an ever changing and increasingly complex set of environments. The effective leader has a vision of the future, a passion about organisational excellence, that can be communicated, and a capacity to convert followers with a transformed vision of the organisation and their role in re-creating the organisation”.

Scientists and scholars suggest that key organisational actors’ characteristics cannot be ignored (Kimberly et al., 1981). Lorenzi et al., (1999) observed that organisational position and role appeared to influence innovative behaviour (innovation adoption was most strongly influenced by those with power, communication linkages, and with the ability to impose sanctions), a finding compatible with the evidence that those who allocate organisational resources influence innovation adoption.

Lorenzi et al., (1999:116) concluded that:

“Successfully introducing such systems into complex health care organisations requires an effective blend of good technical and good organisational skills. People who have low ownership of the system and who vigorously resist its implementation can bring a ‘technically best’ system to its knees. However, effective leadership can sharply reduce the behavioural resistance to change including to new technologies to achieve a more rapid and productive introduction of informatics technology”.

There has been a lot of academic research aimed at uncovering the most ideal skills and characteristics of a senior IT executive. Sifonis et al (1997:72) argued that to be a technology leader, the senior IT executive must be a business leader with all the management skills of any other senior executive. In addition, employees below the senior IT executive must have the technical skills to support top management strategy. Thus it is necessary for the modern day IT manager to be conduit for top management and the IT department rather than a technical expert. The IT manager must be able to 'speak the same language' as the CEO and other senior executives and possess sufficient business acumen to transform technical capabilities into business/strategic benefit.

Managers who devote time to planning and who use appropriate strategies for change can overcome employees' resistance. Managers can overcome most fears by effective communication, education, and a participatory style of management.

Communication is one of the most vital functions of leadership in change situations. Managers should communicate to employees and help them understand that resistance is a common phenomenon in organisational change. Managers must affirm that they value the employee who resists change, and they recognise the productive and legitimate role that resistance can play. Resistance prevents the adoption of poorly conceived plans, slows the speed of change, and directs needed attention to the human and social sides of

change. Managers, through effective communication, can help employees understand the reasons for resistance and thus can enhance the potential for employees to accept and adopt the change.

In-service education that builds specific skills and training is also essential. Education is one of the most effective strategies to minimise individual resistance and to gain the support and commitment of employees. Jarvenpaa et al (1991) states that greater user involvement is needed at higher management levels due to the decision-oriented nature of the computer applications at the strategic planning level. Because top management recognises the importance and value of IS, they are less resistant to change and they recognise that their involvement is necessary if the IS is ultimately to be successful. Dickson et al (1977) noted that the higher the managerial level the less resistance to change is encountered. As a result they will be more involved with and concerned about the success of the system.

The availability of end user training is positively related to the success of the HIS. Educational programmes development has received attention in the IS literature for over two decades, beginning with Brady's 1967 study, which suggested that lack of education is a major reason for lack of utilisation (Brady, 1967). A more recent study of the key IS issues of the 1980s ranked 'User education' as the sixth most important issue (Dickson et al., 1980). A number of researchers have included the education of end users as a

component in their research frameworks (Lucas, 1973; Nolan et al., 1980; Ives et al., 1984). Lucas (1975) notes that “the older and less educated member of the organisation is most likely to resist a computer based system”. Sprague et al (1982) suggest several different educational techniques including tutorials (one student-one instructor); professional development seminars; programmed instructions; computer-assisted instruction; resident experts; and ‘help’ components in software packages. Education, and particularly training, is a major activity of the traditional HIS systems development process.

Training builds confidence and a positive attitude in the user, particularly extensive training, which is structured and formally scheduled, rather than random and incompatible. The environment should be conducive to learning. Best results may be achieved when the subject matter is presented in the following sequence: overview, basic functions, and advanced functions. Practical tutorials should be interspersed, whenever necessary. Training programs commonly supplied by vendors may prove very useful. However, competent in-house training groups may be just as effective.

The length of the training may be dependent on the complexity of the goals (short and long-term) and learning style of the user. Users should practise learning basic skills quickly. Practice time may be planned around off-duty or on-duty time, with a tutor available as needed. A compatible training programme ensures user involvement, growth, and competency

through the changing needs of the future computer environment (AbdelHak et al., 1996).

Many problems encountered by end-users are not related to HIS, but to problems with the computer environment. These problems can be understood from the training phase. The more the end user understands this environment, which includes the hardware, network system, utilities and communication setups, the better he will be at isolating problems that develop (Hinton, 1995). Briety (1995) emphasised the importance of training from the senior management to the end users, who must understand the ideas behind HIS.

Training includes many types of programmes, but the most important one is formal orientation. Sprague et al (1993) and AbdelHak et al (1996) reported that formal orientations are important elements in user satisfaction in an organisation. The programs reduce the anxieties of the user about how she/he will fit into the new system and make sure that she/he knows how to use the system and be comfortable with it. Formal orientation programmes include personnel policies and organisational information.

A participatory style of management also expedites change (Brown, 1994). Management style can determine the success or failure of a change effort. Lewin (1951:65) stated that:

“Resistance is less likely when employees view proposed changes as making their lives easier, more meaningful, or more productive in meeting their goals”.

Managers can develop strategies for change that facilitate the cooperation of their employees. Changes in attitude and behaviour require employees' personal motivation, effort, and commitment. Certain types of changes are more likely to elicit these employee responses and, thereby, foster the change effort. Managers should develop objectives to measure progress from the current to desired behaviour. Informing employees of progress can inspire enthusiasm and increase support for the change: thus, monitoring the progress of change can reinforce and enhance compliance with new behaviour. The same can be accomplished with incentives (Mannion et al., 2001).

Accountability is a serious issue in Kuwait's HCDS, and incompetence was found among Kuwaiti and non-Kuwaiti staff (El-Enezi, 1998). It is therefore recommended that employees should be accountable and answerable. At the present time, there are no rewards for outstanding workers, just as there are no punishments for poor performers. It is recommended that the system should, in the long run, institute a system where outstanding performers are rewarded and poor performers are penalised.

Mannion et al (2001:215) defined incentives as:

“A reward or sanction associated with a particular aspect of performance. Individual rewards or sanctions can take many forms, including: personal financial rewards; intrinsic rewards ('a job well done'); peer reputation; career development; additional budget for

service development; time to pursue other activities such as research; reduced levels of inspiration, or a requirement to engage in professional development or retraining”.

He added that:

“Good incentive schemes should perform the following functions: reward desired actions; discourage unwanted actions; indicate organisational priorities; secure a better alignment between individual and organisational objectives, and generate organisational benefits that exceed costs. Formal, explicit incentives may have some role to play when the sorts of behaviour change required are clear and the measurement of success is relatively unambiguous”.

HIS implementation is not to be viewed only as a stand-alone instrument but, in a broader sense, as an endogenous organisational entity created and controlled through the interaction of staff, process, and HIS. Organisational culture includes established routines, norms, and prevailing attitudes and values (Schein, 1987). A study of professional cultures in Kuwaiti hospitals has previously revealed differences between different work groups with the potential for conflict (El-Enezi, 1998). Conflicts between different work groups with various cultures have been reported previously (Garside, 1998). Although it was beyond the scope of the present study to perform a complete cultural analysis, the findings support this study of conflict between different work groups with various cultures. Political

research recognises that the diverse vested interests of the IT stakeholders affect implementation efforts and that successful implementation depends upon recognising and managing this diversity (Markus, 1983).

The findings from the focus groups, interviews and questionnaires show that lack of knowledge and competence, insufficient dissemination of knowledge, conflict with existing organisational structures and collegial difficulties are likely to have an impact on HIS implementation. Mintzberg (1979) showed that the structure of the hospital is characterised by low flexibility and marked professional autonomy. Resistance to change is common (Garside, 1998). Therefore, change in professional behaviour is apparently dependent on cultural change (Koeck, 1998; Davies et al., 2000) which includes changes in attitudes towards improving skills (Mintzberg, 1979).

There are many problems health organisations face when dealing with culturally diverse employees. A major problem, not surprisingly, is language. Burner (1990) and Thomas (1990) viewed cultural diversity as a potentially disruptive factor in a work environment that challenges managers to extract the highest level of productivity from workers. One of the key problems that might be faced due to cultural diversity is miscommunication. This could be due to language barriers, reluctance to admit to a lack of understanding of instructions, inadequate training in psychological skills, and lack of staff to understand the impact that differing cultural values may have on their own

way of providing health care. Language and literacy issues are common communication difficulties.

The language barrier has emerged as a factor that has affected HIS implementation in the public sector. As long as Kuwait continues to rely on expatriates and not just Arabic speaking expatriates, it is prudent that short courses in the basics of the Arabic language be provided to non-Arabic staff at the time of their appointment. It is therefore recommended that once a staff member is recruited, a carefully designed two to four weeks basic course in Arabic should be provided to them. Similarly, the Arabic staff were found to be quite weak in English. Therefore, it is recommended that carefully worked-out short courses in English be offered to the Arabic staff. The MOH employees (Kuwaitis) were also found to lack English comprehension in a number of instances (in the interviews). Therefore, English courses should not only be for the non-Kuwaiti Arabs, but for Kuwaitis as well.

Extreme reliance on expatriates is a very serious problem in the Kuwaiti system. It is therefore recommended that the overall education system, at the State level, should be re-assessed carefully with the purpose of training more Kuwaitis in technical professions. The colleges and the University (Kuwait has only one university) admission policies and the present status reveal clearly that a vast majority of students opt for arts, history, geography, and other such subjects ,while fewer students take the challenging tracks for technical professions. It is therefore recommended that

the Ministry of Higher Education should institute a commission which should evaluate the human resource needs for a defined future time, and the educational policies as they pertain to admission and enrolment into various academic programmes should be streamlined accordingly. The overall objective, it is recommended, should be that by a given year, say 2020, fifty percent of all professional positions should be occupied by Kuwaitis. This target, the researcher believes, can be achieved. However, it calls for very careful and committed planning.

Unhealthy competition is an extremely dysfunctional attribute for any organisation. Unfortunately, in the MOH hospitals, as observed earlier, there is unhealthy competition in general, and among the Egyptians and the Indians in particular (Chapter two). Furthermore, some unhealthy competition exists between Indians and Asians as well. One practical recommendation for minimising unhealthy competition is that the management, who are Kuwaitis, should not offer special privileges or show preference for any group of employees. At present, it appears to be the case that Egyptians, by virtue of their ability to speak Arabic, and having been recognised as a major contributor to the establishment of the HCDS, are provided better access to, and more recognition by, their Kuwaiti employers. Kuwaiti administrators need to be made aware of this unhealthy competition. Once they realise that it exists and that it makes a negative contribution towards the system, it is

reasonable to hope that they will minimise any chances of extending special privileges of this kind.

Collegiality was found to give satisfaction and minimise the unhealthy competition. It is therefore recommended that all formal and informal avenues, which will enhance and encourage collegiality, should be used. Specifically, it is recommended that employees within various categories of professions should be encouraged to have 'brown bag' lunches. In this respect specific places need to be provided within the MOH health facilities where employees may relax and exchange views and ideas, on an informal basis, during the lunch break. Another recommendation in this respect pertains to creating literary circles and provision of libraries within each facility, encouraging informal professional gatherings within and across facilities. All of these would contribute towards enhancing collegiality.

An important recommendation in this respect pertains to the need for Kuwaiti supervisors and administrators (top management in the hospital) to spend time visiting different offices. During the qualitative stage, in the observation of selected care facilities, it was found that most Kuwaiti supervisors tend not to mix with the junior staff in general and the expatriates in particular. If the top management spend time with the staff, in discussing their problems and encouraging them to solve these problems, it will minimise unhealthy competition. The recognition accorded to Kuwaitis is literally taken

for granted. Therefore Kuwaiti administrators should make the best use of their privileges and contribute towards making the system more effective.

One of the most salient findings of this study was that the Kuwaitis in responsible positions (top management) were dissatisfied with the present situation. As was substantiated, this is essentially because they are not provided with the necessary authority to execute their responsibilities. It is therefore strongly recommended that an organisational analysis of all hospitals and departments should be carried out with the purpose of ensuring that when responsibilities are assigned, they must be compatible with the abilities of the person to whom the responsibilities are assigned. Equally importantly, the necessary authority must be provided while assigning responsibility.

In addition, the MOH believes in centralisation of authority and decision making. As mentioned in the literature review in Chapter Three, “centralisation refers to the level at which decisions are made in the organisation” (AbdelHak et al., 1996). If top level managers make the decisions and allow few decisions to be made at lower levels, the organisation is said to be centralised (AbdelHak et al., 1996). The centralisation factor did not emerge during the qualitative stages, i.e., focus group and interviews. The advantages of centralisation from the MOH point of view were found to consist in of scale and knowledge, the control of standards, and the organisation planning, resource allocation and purchasing. It was obvious that

the centralised MOH structure had affected system usage. Centralised purchasing of hardware and software equipment may force the end users to use equipment and systems that are not optimal for their particular application. In addition, users do not have system ownership resulting in perceptions that the systems are sub-optimal and inflexible.

Kimberly et al (1981:697) argued that:

“Centralisation is important in a theoretical sense. Although the relationship between centralisation and adoption of innovation has been found to be positive in some cases, in others the relationship has been negative”.

He added that:

“In the absence of a persuasive and comprehensive theory about the effects of centralisation on innovation adoption, the evidence suggests that the nature of the relationship may depend on the type of innovation in question and its relationship to key decision makers”.

In its contemporary usage, the bureaucracy that often accompanies centralisation carries a negative implication, as indicated in the literature review (Chapter Three). By contrast, Weber, the German sociologist and economist, fosters a rather different approach to this issue. Impressed with the precision of the Catholic Church, the German army, and successful industrial organisations (Henderson et al., 1947), Weber discovered that these organisations shared many things in common. Some of these characteristics accounted for their success and some accounted for their failure. Bureaucracy

focused on the structure of organisations, whereas scientific management focused on the conduct and structure of work. Those organisations that functioned best appeared to possess the following characteristics, as AbdelHak et al (1996:399) has indicated:

1. Specialists who were proficient at performing parts of the complex tasks;
2. A chain of command that provided for one person having only one boss at any given time;
3. A system of well-communicated and well-understood procedures and rules for getting work done in organisations;
4. Appointments and promotions based on competency (what you knew) rather than who you knew

She also added that problems develop with bureaucracy not in terms of its concept or structure, but in how it is administered in everyday life. She argued that:

“When rules and procedures become ends in themselves rather than more important means to effective and efficient organisations, red tape develops. Also when specialists disregard the importance of the overall organisation and think only of their own special units, organisations fail to realise their full potential”.

The Kuwaiti health system, along with other management systems of the region, is relatively far more centralised and bureaucratic than

management experts would recommend. Centralisation and bureaucracy, it is firmly believed, contributes to the complexities of the workplace. During observations of various care facilities, discussions with the policy makers and administrators in general, and the informants group discussions in particular, it was found that wherever there is a tendency to centralisation and bureaucracy, most of the decision-making rests with the top echelon of management. Therefore supervisors in many instances may feel extremely frustrated, and this is reflected in the dissatisfaction found in this study. Another explanation pertains to the violation of a principle of management, which states that authority should be commensurate with responsibility. Since there is excessive centralisation and bureaucracy, the supervisory staff are given all the responsibilities, but not accorded the matching authority. It is uncommon, for instance, to find that a simple routine decision at times is not implemented for weeks essentially because the top management does not delegate the necessary authority to fulfil the responsibility. Therefore, there is a fairly widespread expression of lack of satisfaction in the top management.

In this regard, it is also recommended that excessive centralisation and bureaucracy are dysfunctional attributes that need to be eradicated. Therefore, the recommendation regarding the setting up of a commission should encompass looking at the overall organisational framework as well, and should be based on empirical studies, recommending and implementing refinements as needed. Within Kuwaiti organisations, the overall rules,

regulations, and procedures, as observed earlier, are extremely cumbersome.

The administrative study, recommended above, should also consider the revising and rectifying this problematic situation.

Communication in the MOH is extremely poor. All employees have a right to know the policies and procedures pertaining to their employment. However, this is possible only if written communication provides such information. Since the official language is Arabic, all non-Arab employees are handicapped and do not have the requisite knowledge of procedures and policies. It is therefore recommended that all the pertinent rules, policies, and procedures should be translated into English and should be made available to employees at all levels.

Both horizontal and vertical communications are quite weak in the MOH. It is therefore recommended that the senior management should impress upon the middle management that they should be effective communicators. In this respect, it is recommended that the top management in MOH should encourage all participants in the change - managers, supervisors, and employees - to discuss the progress and problems associated with the change. Open lines of communication emphasise and reinforce the message that leaders value the opinions and ideas of their employees (Miller, 1993). Open discussion will promote greater understanding, and generate new ideas and learning (Bissell, 1993). It is therefore recommended that top management should impress upon middle management (e.g. administrators,

heads of department, supervisors) that they should be effective communicators. In this respect, it is recommended that specific short courses be arranged in which the supervisory staff should participate and the value, meanings, importance, and utility of effective communication should be impressed upon them. Similarly, different short courses should be planned and conducted for the lower levels of staff. In brief, communication has to become an integral part of the system at all levels.

The MOH has limited resources for HIS implementation. Al-AbdelHadi (2000) indicated that inadequate supplies and resources provided by the government have negatively affected the delivery of health care. In addition, after the Iraqi invasion, demands by the different health care facilities increased. These demands included many issues from reconstructing and remodelling health care facilities to dealing with post-war diseases including physiological and psychological illnesses. Post-war rehabilitation centres were established to deal with the different effects of the war on the Kuwaiti population, which affected the MOH budget.

As mentioned in Section 2.3.2, the MOH had identified many problems with the current HCDS. The MOH believe that implementing HIS will solve these problems. However, the first step in managing problems is to recognise the existence of such problems within the organisation and to solve them first instead of simply implementing HIS. Wyatt (1995:175) said that

“Information is one of the most important resources that a hospital holds”. He added that:

“Information can be defined only by its function- ‘organised data or knowledge that provides a basis for decision making’ -and consists of knowledge about how to achieve a goal and data about the starting point and the intervening terrain”

When the top management takes a patient management decision, these data consists of patient findings, hypotheses, and previous actions taken (Wyatt, 1994). Thus, high quality data is the foundation for decisions at all levels in the health care system. The British hospitals spend £220m on IS, a median of 1.8% of the hospital revenue, which represents a similar percentage to other European countries, but less than the US. In short “good management of information can improve the quality, effectiveness and efficiency of patient care” (Wyatt, 1995:176). However, good management of HIS in the MOH is not easy, due to the previously mentioned factors. Despite these factors, spending more money on the MOH HIS is not the solution, since existing investments have failed to benefit health care, largely because most of the money is spent without generic project management. The findings of this study indicate the need for good generic project management in the public sector.

Project management as defined by some experts as management plus planning (Reiss, 1992). It uses the basic management principles of planning, organising, directing and controlling (with the emphasis on planning) to bring

a project to a successful conclusion. Because projects are unique and demand that people do things differently from before, the team is following an unknown path and must plan ahead.

Project management techniques are used by many and varied professions - engineers, construction contractors, military and government agencies, to name but a few. Today's health care managers also find project management techniques helpful in confronting the conflicting responsibilities of completing ongoing and routine work while exploring and implementing new health care delivery models and technologies with less resources, greater time constraints, and continuous communication skills across organisational units.

It is recommended that the top management at the public sector consider project management in order to implement HIS successfully.

The researcher is mindful that various concerns related to management refinements have been expressed by others at different times and in various disciplines. Therefore, what is being offered here is not entirely unique or new. Nevertheless, the researcher believes that the system will benefit immensely if the suggested recommendations are implemented,. It is, therefore, hoped that this research will contribute towards refining the health care delivery system of Kuwait.

8.6 Contribution to the Field of HIS Implementation

The findings from this study can contribute to future HIS implementation research in several important ways:

- Although, some of the results are consistent with previous research on facilitating and obstructive factors in HIS implementation, this study examines the perception of different stakeholders in regard to the same factors in a new setting, i.e., Kuwaiti HCDS, which has never been investigated before.
- This study provides guidance to healthcare top management, decision makers and other professionals about which organisational issues, cultural and user satisfaction related factors are particularly important, and hence deserve attention during future HIS implementation.
- The results showed that the public and private sectors have different perceptions about the organisational, cultural and user satisfaction issues influencing HIS selection and implementation. In fact, the magnitude of their differences in regard to those factors seems to be very marked.
- The results of this study have already attracted the interest of healthcare professionals in Kuwait. In order to ensure successful HIS implementation in the future.

- This study provides recommendations to healthcare top management, decision makers and other professionals about how to implement HIS successfully.

8.7 Further research

Before concluding this chapter, some recommendations for future research are presented.

- The first and most obvious recommendation regarding future research would be a replication of this study, but with the inclusion of more comprehensive attributes such as: 1) Vendor services e.g. hardware performance, expansion and growth potential, ease of modification, interface capabilities, ease of installation, upgrading capabilities. 2) Vendor selection factors e.g. vendor reputation and company philosophy, system pricing, and vendor resources. 3) Patient satisfaction with the system benefits.
- The second recommendation is to use the same organisational, cultural and user satisfaction factors to examine health information systems implementation in a specific facility such as an Army or Police hospital versus public hospital.
- The relationship of different stakeholders and the factors affecting HIS success is also an area worthy of further study.

REFERENCES

- Abbot, J. (1988). "The Multicultural Work Force-New Challenges for Trainers". *Training and Development Journal*, 42: 12-13.
- AbdelHak, M. Firouzan, P. and Ullman, L. (1993). "Hospital Information Systems Application and Potential: A Literature Review Revisited, 1982-1992". *Top Health Information Management*, (4):1-14.
- Abu-Hakima, A. (1980). "The Modern History of Kuwait". 1950-1965. London: Luzac and company, Ltd.
- Ackerman, L. (1997). "Development, Transition, or Transformation: The Question of Change in Organisations". In *Organisation Development Classics*, ed. D. Van Eynde, J. Hoy, a, and D. Van Eynde, San Francisco: Jossey Bass.
- Ackerman, R. (1982). "Transition Management: An In Depth Look at Managing Complex Change". *Organisational Dynamics*, Summer: 46-66.
- Adams, G., Schvaneveldt, J. (1985). "Understanding Research Methods". Longman.
- Adams, J. (1963). "Towards an Understanding of Inequity". *Journal of Abnormal and Social Psychology*, 67: 422-436.
- Aday, L. (1996). "Designing and Conducting Health Surveys: Comprehensive Guide". San Francisco. Jossey -Bass Inc.

Adler, S. (1969). "Self-Esteem and Causal Attributions for Job Satisfaction and Dissatisfaction". *Journal of Applied Psychology*, 65(March): 327-332.

Aiken, M. and Hage, J. (1971). "The Organic Organisation and Innovation". *Sociology*, 5:63-82.

Ajzen, I. and Fishbein, M. (1980). "Understanding Attitudes and Predicting Social Behavior". Englewood Cliffs, New Jersey: Prentice-Hall.

Al- Jarallah, K. (1996). "The History Services in Kuwait". The Kuwait Centre for Research Studies.

Al-AbdelHadi, M. (2000). "Implementing Health Insurance on Kuwaiti Citizens is a Step toward Decreasing Number of Visitors to Health Care Facilities". *Al-Qabas News Paper*, August: 56001.

Al-Adaily, N. (1980). "Study of Job Satisfaction among Saudi Employees in Riyadh, Saudi Arabia". A Master Thesis. Humpoldt State University.

Al-Amri, O. (1980). "A study of Managerial Roles at Riyadh Central Hospital". A Master Thesis. Saudi Arabia: King Saud University.

Alavi, M. and Henderson, J. (1981). "An Evolutionary Strategy for Implementing a Decision Support System". *Management Science*, 27(11):1309-1321.

Alavi, M. and Joachimsthaler, E. (1992). "Revisiting DSS Implementation Research: A Meta Analysis of the Literature and Suggestions for Researchers". MIS Quarterly, March: 95-112.

Al-Doghaither, A. (2000). "Patient Satisfaction with Physicians' Services in Primary Health Care in Kuwait City, Kuwait". The Journal of the Royal Society for the Promotion of Health, 3: 170-174.

Alessa, S. (1981). "The Manpower Problem in Kuwait". London: Kegan Paul International.

Al-Kenderi, F. (1998). "Patient' and Nurses' Perceptions of the Quality of Nursing Care in Kuwait". Journal of Advanced Nursing, 27:914-921.

Al-Khras, S. (1982). "Aspects of Immigrant Labour Force Stability in the State of Kuwait". Beirut: Population and Development in the Middle East, EWCA.

Al-Naqeeb, K. (1978). "Social Strata Formation and Social Change in Kuwait". Journal of Social Sciences (Kuwait), 5(4): 264.

Al-Ostad, A. (1986). "An Ethnic Geography of Kuwait". A Study of Eight Ethnic Groups PhD Thesis, Kent State University.

Al-Qudsi, S. and Shah, N. (1991). "The Relative Economic Progress of Male Foreign Workers in Kuwait". *International Migration Review*, 25 (1): 141-166.

Al-Refaei, Y. and Omran, K. (1992). "Organisational and Psychological Determininants of Employee Turnover in Kuwait". *International Journal of Public Sector Management*, 5 (5):57-77.

Alter, A. (1998). "Winning over Middle Managers". *Computer World*, 32(13): 62.

Alter, S. (1999). "Information Systems, A Management Perspective"
Addison-Wesley.

Amatayakul, M. (1999). "The Role of Health Information Managers in CPR Projects: A Practical Guide". *AHIMA*, 65(12): 12-20.

Anderson, A. Basilevsky, A. and Hum, D. (1983). "Measurement: Theory and Techniques". In Peter H Rossi, James D. Wright and Andy D. Anderson (Eds.) *Handbook of Survey Research*. New York NY Academic Press Inc.

Anderson, J. (1989). "The Phenomenological Perspective. In J.M. Morse (Ed.). *Qualitative Nursing Research: A Contemporary Dialogue*". Rockville MD: Aspen.

Anderson, J. Aydin, C. and Jay S. (1994). "Evaluating Health Care Information Systems". *Methods and Applications*, 22:22-32.

Ansoff, H. (1965). "Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion". New York: McGraw-Hill

Ash, J. (1995). "Cross-Site Study of the Implementation of Information Technology Innovations in Health Sciences Centers". *Journal of the American Medical Informatics Association*, Symposium Supplement 795-99.

Ash, J. (1997a). "Factors Affecting the Diffusion of the Computer-Based Patient Record". *Journal of the American Medical Informatics Association*, 682-686.

Ash, J. (1997b). "Organisational Factors That Influence Information Technology Diffusion in Academic Health Sciences Centres". *Journal of the American Medical Informatics Association*, Mar/Apr: 102-111.

Ash, J. Berg, M and Coiera, E. (2004). "Some Unintended Consequences of Information Technology in Health Patient Care Information System-Related Errors". *Journal of American Medical Informatics Association*, Mar-Apr 11(2):104-112.

Ash, J. Gorman, P. Lavelle, M. Payne, T. Massro, T. Franz, G. And Lyman, JA. (2003). "A Cross-Site Qualitative Study of Physician Order Entry".

Journal of American Medical Information Association, Mar-Apr: 10 (2):188-200.

Audet, A. Goodnough, L. and Parvin, C. (1996). "Evaluating the Appropriateness of Red Blood Cell Transfusions: The Limitations of Retrospective Medical Record Reviews". International Journal for Quality in Health Care, 8:41-49.

Austin, C. (1992). "Information Systems for Health Services Administration". Information and Management, 8(30):223-233.

Avgerou, C. (2000). "IT and Organisational Change: An Institutionalise Perspective". Information Technology and People, 13(4) 234 – 262.

Azubuike, M. (1999). "Health Information Systems in Developing Countries: Benefits, Problems and Prospects". The Journal of the Royal Society for the Promotion of Health, 119:180-184.

Babbie, E. (1973). "Survey Research Methods". Belmont, CA: Wadsworth.

Babbie, E. (1992). "The Practice of Social Research". 6th ed. Belmont, California: Wadsworth Publishing.

Bach, G. and Wyden, P. (1969). "The Intimate Energy". New York: William Morrow and Co.

Backhard, R. and Harris, R. (1987). "Organisational Transitions". 2nd Ed.
Reading, MA: Addison Wesley.

Bagley, T. Snyder-Halpern, R. Staggerrrs, N. (1999). "Analysis, Process, and Techniques; Case Study: Clinical Informatics Case Studies". Computers in Nursing, 17(5) September/October: 203-206.

Bailey, F. (1990). "Development of an Instrument for the Management of Computer User Attitudes in Hospital". Mathematical Information Medicine, 29: 51-56.

Bailey, J. and Pearson, S. (1983). "Development of a Tool for Measuring and Analysing Computer User Satisfaction". Management Sciences, 29(5):519-529.

Baril, W. and Thompson, R. (1995). "Managing Information Technology Projects in the Public Sector". Journal of Public Administration Review, 55: 559-566.

Barki, H. and Hartwick, J. (1994). "Measuring User Participation, User Involvement, and User Attitude". MIS Quarterly, 18(1): 59-79.

Barney, J. (1986). "Organisational Culture: Can It Be a Source of Sustained Competitive Advantage?". Academy of Management Review, July: 656-665.

Baroudi, J. and Orlikowski, W. (1988). "A Short-Form Measure of User Information Satisfaction: A Psychometrics Evaluation and Notes on Use". *Journal of Management Information Systems*, 4(4):44-59.

Barrett, M. (2000). "The Evolving Computerised Medical Record". *Healthcare Informatics*, 83-88.

Basu, V. Hartono, E. Leaderer, A. and Sethi, V. (2001). "The Impact of Organisational Commitment, Senior Management Involvement, and Team Involvement on Strategic Information Systems Planning". *Information and Management*, (39) 513-524.

Bates, D. Cohen, M. Leape, L. Overhage, J. Shabot, M. and Sheridan, T. (2001). "Reducing the Frequency of Errors in Medicine using Information Technology". *Journal of American Information Association*, 8:299-308.

Bauman, K. (1980). "Research Methods for Community Health and Welfare: An Introduction". New York Oxford University Press.

Bauwens, E. and Anderson, S. (1992). "Social and Cultural influences on Health Care". In *Community Health Nursing Process and Practice for Promoting Health*, 3rd Ed St Louis USA: Mosby-Yearbook.

Beblawi, H. (1984). "The Arab Gulf Economy in a Turbulent Age". Croom Helm Dover, New Hampshire.

Beckhard, R. and Harris, R. (1987). "Organisational Transitions: Managing Complex Change". Wokingham: Addison-Wesley.

Beer, M. (1980). "Organisation Change and Development". Santa Monica, California.

Belasco, J. and Stayer, R. (1993). "Flight the Buffalo: Soaring to Excellence. Learning to Let Employees Lead". New York: Warner Books.

Bellinger, G. "Change Management". www.outsights.com.

Bellivau, P. Griffin, A. and Somermeyer, S. (1996). "The PDMA Toolbook for New Product Development". John Wiley and Sons.

Benbasat, I. Dexter, A. and Mantha, R. (1980). "Impact of Organisational Maturity on Information System Skill Needs". MIS Quarterly, 4(1):21-34.

Benbasat, I. (1974). "An Experimental Evaluation of the Effects of Information System and Decision Maker Characteristics on Decision Effectiveness". Unpublished PhD. dissertation, University of Minnesota.

Bennet, P. and Lientz, K. (2000). "On Time Technology: How To Achieve Implementation Success with Limited Time". Academic Press.

Bennett, J. (1976) "Integrated Users and Decision Support Systems". Proceedings of the 6th and 7th Annual Conferences of the Society for Management Information Systems, 77-86.

Bennis, W. and Schein, E. (1966). "Leadership and Motivation: Essays of Douglas McGregor ". Cambridge: MA.

Berdie, D. Anderson, J. and Niebuhr, M. (1986). "Questionnaires: Design and Use". NJ: Scarecrow Press.

Berg, M. (2001). "Implementing Information System in Health Care Organisations: Myths and Challenges". International Journal of Medical Information, 64:143-56.

Berg, M. Goorman, E. (1999). "The Contextual Nature of Medical Information". International Journal of Medical Information, 56:51-60.

Bernard, C. (1938). "The Functions of the Executives". Cambridge: MA Harvard University Press and Scott WG: Chester I. Barnard and Guardians of the Managerial State. Lawrence KS: University of Kansas Press.

Berwick, D. (1998). "Developing and Testing Changes in Delivery of Care". Annals of Internal Medicine, 8: 651-6.

Berwick, D. Enthoven, A. and Bunker, J. (1992). "Quality Management in the NHS: the Doctor's Role". British Medical Journal, 304:235-9.

Beynon-Davis, P. (1998). "Information Systems Development". 3rd Edition.

Bissell, B. and Zamora, B. (1993). "Organisational Structure: The Neglected Aspect of the Management of Modern Environment Health Organisations". *Journal of Environmental Health*, 55:23-29.

Black, J. and Champion, D. (1976). "Methods and Issues in Social Research". (University of Tennessee). New York: Ion Wiley and Sons

Blau, P. (1955). "The Dynamics of Bureaucracy". Chicago: University of Chicago Press.

Blau, P. and Schoenherr, R. (1971). "The Structure of Organisations". New York: Basic Books.

Blois, M. (1986). "Medical Informatics". *The Western Journal of Medicine*, 145:777-790.

Bobbitt, R. and Ford, D. (1980). "Decision Maker Choice as a Determination of Organisational Structure". *Academy of Management Review*, January: 13-33.

Bockman, V. (1971) "The Herzberg Controversy". *Personnel Psychology*, 24:155-189.

Bogomolova, N. (1973). "Human Relations Doctrine: Ideological Weapon of the Monopolies". Moscow: Progress Publishers.

Boje, D. Dennehy, R. (1993). "Managing in Postmodern World Dubuque".

IA: Kendall/Hunt Publishers.

Boschken, H. (1990). "Strategy and Structure: Reconceiving the Relationship". *Journal of Management*, March: 135-150.

Bostrom, R. and Heinen, S. (1977). "MIS Problems and Failures: A Socio-Technical Perspective". *MIS Quarterly*, 3:17-32.

Bowers, J. (1995). "Making it Work: a Field Study of a 'CSCW' Network". *Information Society*, 11:189-207.

Boyne, G. (2002). "Public and Private Management: What's the Difference?". *Journal of Management Studies*, 39 (January): 2322-2380.

Bozeman, B. Breteschneider, S. (1994). "The Publicness Puzzle in Organisation Theory: A Test of Alternative Explanations of Differences between Public and Private Organisations". *Journal of Public Administration Research and Theory*, 197-223.

Brady, R. (1967). "Computers in Top-Level Decision Making". *Harvard Business Review*, July: 67-76.

Brayfield, A. and Crockett, W. (1955). "Employee Attitudes and Employee Performance". *Psychological Bulletin*, 52:396-424.

Bretschneider, S. (1990). "Management Information System in Public and Private Organisation: An Empirical Test". *Public Administration Review*, 50(5): 536-545.

Brierty, L. (1995). "Reengineering a Step Beyond CPR". *Journal of AHIMA*, 66:2-8.

Brodnik, M. and Watson, B. (1994). "An Investigation of Barriers to Computer-Based Patient Record Implementation". *Top Health Information Management*, August 15(1):52-63.

Brown, C. Magill, S. (1994). "Alignment of the IS Function with the Enterprise: Toward a Model of Antecedents". *MIS Quarterly*, 18(4):371-405.

Bryman, A. Beardsworth, D. Keil, E. Ford, J. (1983). "Organisational Size and Specilaisation". *Organisation Studies*, September: 271-278.

Burch, J. (1992). "System Analysis, Design, and Implementation".

Burke, W. (1980). "Organisation Development: Principles and Practices". Boston: Little Brown.

Burkes, M. (1991). "Identifying and Relating Nurses Attitudes toward Computer Use". *Computer in Nursing*, 9(5):22-34.

Burner, D. (1990). "Managing Multicultural Nursing Staff in a Multicultural Environment". *Journal of Nursing Administration*, 20(6):30-4.

Burns, J. (1978). "Transforming Leadership: A New Pursuit of Happiness".

First Grove Press Edition.

Burns, N. and Grove, S. (1997). "The Practice of Nursing Research: Conduct, Critique and Utilisation". Third Edition. W.B. Saunders Company.

Burnum, J. (1989). "The Misinformation Era: The Fall of the Medical Record". *Ann Intern Med.*; 110:482-4.

Business Week, (1992). "Quality". November 30: 66-75.

Business Week. (1993). "Executive Pay: The Party Ain't Over Yet". April: 56-79.

Calhoun, M. and Hughes, L. (1989). "The Relationship of Age, Level of Formal Education and Duration of Employment towards Attitudes Concerning the Use of Computers in Workplace". *Journal of Medical Systems*, 13: 1-9.

Callaly T. (1998). "The Development of a Mental Health Service Patient Information Management System". *Australian Health Review*, 21:182-193.

Cameron, K. Freeman, S. (1991). "Culture, Congruence, Strength and Type: Relationships to Effectiveness". *Research Organisational Change Development*, 5: 23-58

Campbell, J, (1970). "Convergent and Discriminate Validation by the Multitrait-Multimethod Matrix". *Psychological Bulletin*, 56(2):81-105.

Carey, A. (1967). "The Hawthorne Studies: A Radical Criticism". American Sociological Review June: 403-416; and Yorks, L. and Whitsett, D. (1985).

"Hawthorne, Topeka, and the Issue of Science versus Advocacy in Organisational Behaviour". Academy of Management Review, January: 21-30.

Carnegie, D. (1978). "Managing through People". New York: Simon and Schuster.

Carroll, G. (1984). "The Specialists Strategy". California Management Review, Spring: 126-137.

Cats-Baril, W. and Thompson, R. (1995). "Managing Information Technology Projects in the Public Sector". Public Administration Review, 55(6): 559-566.

Cejka, S. (1993). "The Changing Healthcare Workforce: A Call for Managing Diversity". Healthcare Executives, 8(2): 20-23.

Central Intelligence Agency & Director of Central Intelligence (CIA). (2002). "The World Fact book-Kuwait". USA <http://www.odci.gov/cia/publications/factbook/geos/ku.html>.

Chandler, A. (1962). "Strategy and Structure". MIT Press.

Charles, F. Southon, G. Sauer, C. and Dam-pney, C. (1997). "Information Technology in Complex Health Services: Organisational Impediments to

Successful Technology Transfer and Diffusion". Journal of the American Medical Informatics Association, 4: 112-124.

Chea, Y. Kim, S. Lee, B. Choi, S. And Kim, I. (1994). "Implementing Health Management Information Systems: Measuring Success in Korea's Centres". International Journal of Health Planning and Management, 9:341-348.

Checkland, P. (1981). "Systems Thinking, System Practice". New York: Wiley.

Chemers, M. and Ayman, R. (1993). "Leadership Theory and Research". New York: Academic Press.

Cheney, P. (1984). "Effects of Individual Characteristics, Organisational Factors and Task Characteristics on Computer Programmer Productivity and Job Satisfaction". Information and Management, July 209-214.

Chervany, N. Dickson, G. and Kozer, K. (1971). "An Experimental Gaming Framework for Investigating the Influence of Management Information Systems on Decision Effectiveness". Management Information Systems Research Centre, Working paper, University of Minnesota.

Chessare, J. (1993). "Implementation of Costar in an Academic Group Practice of General Pediatrics". Journal of Medical Computing, 10:23-27.

Child, J. (1984). "Organisation: A Guide to Problems and Practice". 2nd New York: Harper & Row.

Cleland, D. and Kin, W. (1983). "Systems Analysis and Project Management". New York: McGraw-Hill: 191-192.

Cobler, L. (1984). "Development of a Hospital Information System". M.Sc. Thesis, Trinity University.

Coiera, E. (2000). "When Conversation is better than Computation". Journal of American Medical Information Association, 7:277-86.

Cole, R. and Perides, M. (1995). "Interprofessional Relations in Health Care". Edited by Soothill, K. Mackay, L. and Webb, C. Edward Arnold Publisher.

Collier, M. and Thomas, M. (1988). "Cultural Identity: An Interpretative Perspective". International and Intercultural Communication Annual, 1299-1320.

Converse, J. and Presser, S. (1986). "Survey Questions: Handcrafting the Standardised Questionnaire". Newbury Park CA Sage.

Cook, T. and Campbell, D. (1979). "Quasi-experimentation: Design and Analysis Issues for Field Settings". Chicago: Rand McNally.

Cooper, B. and Zmud, W. (1990). "Information Technology Implementation Research: A Technological Diffusion Approach". *Management Science*, 36 (2): February.

Cormack, D. (1996). "The Research Process in Nursing". 3rd Ed. Blackwell Science Ltd.

Corwin, R. (1972) "Strategies for Organisational Innovation: An Empirical Comparison". *American Sociological Review*, 37:441-454.

Counte, M. Salloway, J. (1983). Adapting to the Implementation of a Medical Information System: A Comparison of Short- Versus Long Term Findings". *Journal of Medical System*, 11: 11-20.

Creswell, J. (1994). "Research Design: Qualitative and Quantitative Approaches". SAGE: London.

Cummings, T. and Worley, C. (1997). "Organisation Development and Change". Cincinnati Ohio South-Western College Publishing.

Cummings, T. Mohrman, S. Mohrman, A. and Ledford, G. (1985). "Organisation Design for the Future. In *Doing Research that is Useful for Theory and Practice*". San Francisco: Jossey Bass.

Dahl, R. (1973). "Modern Political Analysis". Prentice-Hall Englewood Cliffs.

Dahl, R. and Lindblom, C. (1953). "Politics, Economics and Welfare".

Chicago: University of Chicago Press.

Dalton, D. Tudor, W. Spendolini, M. Fielding, G. and Porter, L (1980).

"Organisation Structure and Performance: A Critical Review". Academy of Management Review, January: 49-64.

Danziger, J. and Anderson, K. (2002). "The Impacts of Information

Technology on Public Administration: An Analysis of Empirical Research from the Golden Age of Transformation". International Journal of Public Administration, 25(5): 591-627.

Davies, H. Nutley, S. and Mannion, R. (2000). "Organisational Culture and Quality of Health Care". Quality in Health Care, 9: 111-119.

Davis, F. (1989). "Perceived Usefulness, Perceived Ease of Use, and Ease of Use, and User Acceptance of Information Technology". MIS Quarterly, 13 (3):233-240.

Dawson, S. (1996). "Analysing Organisations". Hampshire: Macmillan.

Dawson, S. (1999). "Managing, Organising, and Performing in Health Care: What Do We Know and How Can We Learn?. In Organisational Behaviour in Health care" eds A. Mark and S. Dopson. London: Macmillan.

- Deal, T. Kennedy, A. (1982). "Corporate Cultures". Reading, MA: Addison-Wesley.
- DeBrabander, B. and Edstrom, A. (1977). "Successful Information Systems Development Projects". *Management Science*, (24): 191-199.
- DeLone, W. and McLean, C. (1992). "Information Systems Success: The Quest for the Dependent Variable". *Information Systems Research*, 3(1)60-95.
- Denison, D. (1984). "Bringing Corporate Culture to the Bottom Line". *Organisational Dynamics*, Autumn: 4-22.
- Denzin, N. (1989). "The Research Act". New York: McGraw-Hill. 3rd Ed.
- DeSanctis, G. (1982). "An Examination of an Expectancy Theory Model of Decision Support System Use". *Proceedings of the Third International Conference on Information Systems*, December: 121-135.
- Dick, R. and Steen, E. (1991). "The Computer-Based Patient Record: An Essential Technology for Health Care". National Academy of Sciences, Washington.
- Dick, R. Steen, E. and Detmer, D. (2003). "The Computer-Based Patient Record: An Essential Technology for Health Care".
<http://books.nap.edu/books/0309055326/html/index.html> World Wide Web

Dickson, G. Leitheiser, R. Wetherbe, J. and Nechis, M. (1980). "Key Information Systems Issues for the 1980's". *Management Information Systems Quarterly*, 8(3):135-162.

Dickson, G. Senn, J. and Chervany, N. (1977). "Research in Management Information Systems Development". *Management Science*, (23): 913-923.

Dixon-Woods, M. Agarwal, S. Jones, D. Young, B. and Sutton, A. (2005). "Synthesising Qualitative and Quantitative Evidence: A Review of Methods". *Journal of Health Services Research and Policy*, 10: 45-53.

Doll, W. and Torkzadeh, G. (1988a). "Developing a Multidimensional Measure of System Use in an Organisational Context". *Information and Management*, 33:171-185.

Doll, W. and Torkzadeh, G. (1988b). "The Measurement of End-User Computing Satisfaction". *MIS Quarterly*, June: 259-274.

Donaldson, L. (1987). "Strategy and Structural Adjustment to Regain Fit and Performance: In Defense of Contingency Theory". *Journal of Management Studies*, January: 1-24.

Doolan, A. Bates, D. and James, A. (2003). "The Use of Computers for Clinical Care". *Journal of American Medical Informatics Association*, 10(1): 93-107.

Dornfest, S. (1993). "History and Impediments to Progress in the Development and Implementation of the Computerised Patient Record Proceedings from the Health Information Management Systems Society". American Hospital Association, 84:15-24.

Downing, C. (1999). "System Usage Behaviour as a Proxy for User Satisfaction: An Empirical Investigation". Information and Management, 35: 203-216.

Draft, R. (1986). "Organisation Theory and Design". 2nd Ed.

Dykstra, R. (2002). "Computerised Physician Order Entry and Communication: Reciprocal Impacts". AMIA Proceedings.

Dzurec, L. Coleman, P. (1995). "A Hermeneutic Analysis of the Process of Conducting Interviews Image". Journal of Nursing Scholarship, 27(3):245-250.

Edstrom, A. (1977a) "User Influence and the Success of MIS Projects". Human Relations, 30:11-20.

Edstrom, A. (1977b) "User Influence on the Development of MIS- a Contingency Approach". Human Relations, 30 (7): 589-607.

Edward, H. Shortliffe, L. and Perreault, E. (1990). "Medical Informatics: Computer Applications in Health Care".

Edwards, R. Brown, J. Hodgson, P. Kyle, D. Reed, D. and Wallace, B. (1999).
“An Action Plan for Tobacco Control at Regional Level”. *Public Health*,
113(4):165-70.

Effken, J. Carty, B. (2002). “The Era of Patient Safety: Implications for
Nursing Informatics Curricula”. *Journal of American Medical Information
Association*, 9 (Supply):S120-3.

Ein-Dor, P. and Segev, E. (1978). “Organisational Context and the Success of
Management Information Systems”. *Management Science*, 24(10): 1064-
1077.

El-Enezi, N. (1998). “An Analytical Study of Job Satisfaction among Health
Professionals in Kuwaiti Hospital”. PhD Dissertation, University of Swansea.

Ellis, B. and Rivett, R. (1990). “Extending the Use of Clinical Audit Data: a
Resource Planning Model”. *British Medical Journal*, 301:159-165.

Enshassi, A. and Burgess, R. (1991). “Managerial Effectiveness and the Style
of Management in the Middle East: An Empirical Analysis”. *Construction
Management and Economics (UK)*, 9(1): 79-92.

Fahy, L. and Narayanan, V. (1994). “Macroenviromental Analysis for
Strategic Management”. St Paul: West Publishing Co. and Duncan, WJ

Ginter, PM Swanye LE: *Strategic Management of Health Care Organisations*.
Cambridge: Blackwell.

Fairhurst, E. (1983). "Organisational Rules and the Accomplishment of Nursing Work on Geriatric Wards". *Journal of Management Studies*, July: 315-332.

Farah, T. (1983). "Arab Labour Migration: Arab Migrants in Kuwait". In *Society of "Developing Societies". The Middle East* Edited by Asad, T. and Owen, R. New York: Monthly Review Press.

Farbey, B. Land, F. Targett, D. (1999). "Moving IS Evaluation Forward: Learning Themes and Research Issues". *Strategic Information Systems*, 8: 189-207.

Feidstein, P. (1999). "Health Policy Issues, an Economic Perspective on Health Reform". 2nd edition.

Ference, T. and Ureisky, M. (1976). "Computers in Management: Some Insight into the State of the Revolution". *Management Datamatics*, 5(2):55-63.

Ferlie, E. (1997). "Large-scale Organisational and Managerial Change in Health Care: a Review of the Literature". *Journal of Health Service Research and Policy*, 2:180-189.

Ferlie, E. and Shortell, S. (2001). "Improving the Quality of Health Care in the United Kingdom and the United States Framework for Change". *Milbank Quarterly*, 79: 281-315.

- Field, M. (1998). "Computer-Based Management of Content in Planning a Problem based Medical Curriculum". *Journal of Medical Education*, 32:163-171.
- Fleishman, E. (1967). "Studies in Industrial and Personnel Psychology". Home Wood: Dorsey Press.
- Ford, J. (1999). "Organisational Change as Shifting Conversations". *Journal of Organisational Change Management*, 12(6): 480 – 500.
- Fox, J. and Tracy, P. (1986). "Randomised Response: A Method for Sensitive Surveys". Beverly Hills: Sage.
- Fredrickson, J. (1986). "The Strategic Decision Process and Organisation Structure". *Academy of Management Review*, April: 280-297.
- Friedman, B. and Martin, J. (1987). "Hospital Information System: The Physician's Role". *Journal of the American Medical Association* 257:1792-1796
- Friedman, C. and Wyatt, J. (1997). "Evaluation Methods in Medical Informatics". Spring Verlag New York, Inc.
- Friel, P. Reznikoff, M. and Rosenberg, M. (1969). "Attitudes toward Computers among Nursing Personnel in a General Hospital". *Conn. Medicine*, 33(5):307-308.

Gallagher, C. (1974) "Perceptions of the Value of a Management Information System". *Academy of Management Journal*, 17:46-55.

Gardner, M. Mitchell, A. and Russo, J. (1985). "Low Involvement Strategies for Processing Advertisement". *Journal of Advertisement*, 14(2):4-12.

Garrity, J. (1963). "Top Management and Computer Profits". *Harvard Business Review*, (July-August): 6-18.

Garside, P. (1998). "Organisational Context for Quality: Lessons from the Fields of Organisational Development and Change Management". *Journals of Quality in Health care*, 7(Supply): S8-S15.

Gary, W. Dickson, and Wetherbe, J. (1985). "The Management of Information Systems". McGraw-Hill Series in Management Information Systems.

Gay, L. (1987). "Educational Research: Competencies for Analysis and Application". 3rd Merrill Publishing Co.

Gibson, H. (1977). "Determining User Involvement". *Journal of Systems Management*, August: 20-22.

Gingras, L. and McLean, E. (1982). "Designers and Users of Information Systems: a Study in Differing Profiles". *Proceedings of the 3rd International Conference on Information Systems*: 162-182.

Ginzberg, M. (1978). "Steps towards More Effective Implementation of MS and MIS". *Interfaces*, May 8(3): 81-88.

Ginzberg, M. (1981a). "Early Diagnosis of MIS Implementation Failure: Promising Result and Unanswered Questions". *Management Science*, 27(4):459-478.

Ginzberg, M. (1981b). "Key Recurrent Issues in the MIS Implementation Process". *MIS Quarterly*, June 5(2): 47-59.

Glaister, K., Falshaw, J. (1999). "Strategic Planning: Still Going Strong?". *Long Range Planning*, 32(1):107-16.

Glandon, G. and Buck, T. (1994). "Cost-Benefit Analysis of Medical Information Systems: A Critique". In Anderson, J. Aydin, C. and Jay, S. *Evaluating Health Care Information Systems*. SAGE: London.

Glandon, G. and Shapiro, R. (1995). "Economic and Quality of Life Outcomes: Managed Care Perspectives". *Oncology*, November 9 (11 Suppl):111-9.

Glasser, B. and Strauss, A. (1967). "The Discovery of Grounded Theory". Aldine. Chicago IL

Goldstein, M. Hoffman, B. and Coleman, R. (2002). "Patient Safety in Guideline-Based Decision Support for Hypertension Management: ATHENA

DSS". Journal of American Medical Information Association, 9(Nov-Dec Suppl):S11-6.

Golembiewski, R. Proehl, C. and Sink, D. (1982). "Estimating Success of OD Applications". Training and Development Journal, 72:86-95.

Gordon, G. (1991). "Managing Diversity in Rand groups". Research and Technology Management, 34(Jan/Feb.): 18-23.

Gordon, J. Hazlett, C. Tencate, O. Mann, K. Kilminster, S. Prince, K.

O'Driscoll, E. Snell, L. and Newble, D. (2000). "Strategic Planning in Medical Education: Enhancing the Learning Environment for Students in Clinical settings". Medical Education, 34(10):841-50.

Gorry, G. A. and Scott Morton, M.S. (1971) "A Framework for Management Information Systems". Sloan Management Review, 13:55-70.

Gottschalk, P. (1999). "Implementation Predicators of Strategic Information Systems Plans". Information and Management, 36:77-91.

Gray, A and Jenkins B. Markets. (1993). "Management and the Public Service: the Changing of a Culture, in Markets and Managers: New Issues in the Delivery of Welfare". Open University Press.

Green, J. and Thorogood, N. (2004). "Qualitative Methods for Health Research". SAGE: London.

Greenhalgh, T. Robert, G. Bate, P. Macfarlane, F. Kyriakidou, O. and Peacock, R. (2004). "Spreading and Sustaining Innovations in Health Service Delivery and Organisation". NHS Service Delivery and Organisation R&D Programme.

Greens, R. and Shortliffe, E. (1990). "Medical Informatics". Journal of the American Medical Association, 263.

GreenWald, D. (1983). "The McGraw-Hill Dictionary of Modern Economics: A Handbook of Term and Organisations". McGraw-Hill Book Company New York, 235-236.

Gremy, F. Fessier, J. Bonnin, M. (1999). "Information Systems Evaluation and Subjectivity". International Journal of Medical Informatics, 56: 13-23.

Gretchen, F. and Murphy, A. (1996). "Computer-Based Patient Record- A Unifying Principle". In Mervat AbdulHak, Sara Grostic, Mary Allice Hanken, and Ellen Jacobs. Health Information: Management of Strategic Resource, 1st Edition.

Griffin, R. (1982). "Task Design: An Integrative Framework Approach". Glenview Scott, Foresman.

Grol, R. and Wensing, M. (2004). "What Drives Change? Barriers to and Incentives for Achieving Evidence-Based Practice". Medical Journal of Australia, March 15: 180(6 Supp):S57-60.

Gross, L. and Watkins, M. (1993). "Foundation of Clinical Research: Application to Practice".

Gross, R. (1998). "Patients' Opinions of the Role of Primary Care Physicians and the Organisation of Health Care Services". *Harefuah*, 134:34-50.

Gruneberg, M. (1979). "Understanding of Job Satisfaction". Macmillan: London.

Guthrie, A. (1974). "Attitudes of User Managers toward Management of Information Systems". *Management Informatics*, 3(5): 45-65.

Hage, J. And Dewer, R. (1967). "Elite Values versus Organisational Structure in Predicting Innovation". *Administrative Science Quarterly*, 72:503-519.

Haimann, T. (1989). "Supervisory Management for Health Care Organisations". Catholic Health Association of the United States.

Hales, C. (1986). "What Do Managers Do? A Critical Review of the Evidence". *Journal of Management Studies*, 23(1):88-115.

Hall, R. (1982). "Organisations: Structures and Process". 3rd Ed Englewood Cliffs New Jersey.

Ham, C. (1991). "The National Health Service Organisation and Management". Radcliff Medical Press.

- Hamilton, S. and Chervany, N. (1981). "Evaluating Information System Effectiveness Part 1. Comparing Evaluation Approaches". MIS Quarterly, September: 55-69.
- Hammersley, M. (1992a). "So, What are Case Studies? In What's Wrong with Ethnography". London: Routledge: 183-200.
- Hammersley, M. (1992b). "By What Criteria Should Ethnographic Work be Judged?". London: Routledge 57-82
- Hampden-Turner, C. and Trompenaars, F. (1993). "The Seven Cultures of Capitalism: Value System for Creating Wealth in the United States, Britain, Japan, Germany, France, Sweden, and The Netherlands". New York: Doubleday.
- Han, K. and Schoch, N. (1995). "Applying Diffusion Theory to Electronic Publishing". A Conceptual Framework for Examining Issues & Outcomes.
- Haralambos, M. (1985). "Sociology: Themes and Perspectives". U.K. University Tutorial Press.
- Harris, A. and Kiefert, P. (1999). "Information Technology Diffusion in Hospitals in the United States". IRMA International Conference in Management Information Technology Resources in Organisations in the Next Millennium, Mehdi Khosrowpour.

Harris, M. (1978). "Costar- A Working Computer System for Ambulatory Care". *Journal of Military Medicine*, 3: 880-882.

Harrison, S. (1989). "General Management and Medical Autonomy in the National Health Service". *Health Service Management Research*, 2:38-46.

Harrison, S. and Pollitt, C. (1995). "Controlling Health Professionals". Open University Press.

Harrison, S. Hunter, D. Marnoch, G. (1992). "Just Managing Power and Culture in the National Health Service". Macmillan: London.

Health and Vital Statistics Department. (1984). "Kuwait Health". Ministry of Public Health.

Health and Vital Statistics Department. (2000). "Kuwait Health". Kuwait: Ministry of Public Health.

Healthcare Information and Management System Society. The 14th Annual HIMSS Leadership Survey.

Heany, D. (1972) "Education the Critical Link in Getting Managers to Use Information Systems". *Interfaces*, May: 1-7.

Heller, R. (1998). "Managing Change". New York, NY: DK Publishing.

Helman, C. (1984). "Culture, Health and Illness". Bristol: John Erigh and Sons.

Henderson, A. and Parson, T. (1947). "The Max Weber: The Theory of Social and Economic Organisation". New York: Free Press.

Higginson, M. (1965). "Managing with EDP: A Look at the State of Art". American Management Association Inc. New York.

Hill, T. and Westbrook, R. (1997). "SWOT Analysis: It's Time for a Product Recall". Long Range Planning 30(1):46-52.

Hinton, M. (1995). "Laboratory Information Management Systems". Marcel Dekker Inc: USA.

Hirschheim, R. Newman, M. (1988). "Information Systems and User Resistance: Theory and Practice". Computing, 31(5):398-408.

Hofstede, G. (1980). "Culture's Consequences: International Differences in Work Related Values". SAGE: London.

Hofstede, G. (1983). "The Cultural Relativity of Organisational Practices and Theories". Journal of International Business, Fall: 43-55.

Hofstede, G. (1991). "Cultures' and Organisations: Software of Mind". Cambridge UK: McGraw-Hill Book Company.

Hofstede, G. (1994). "Cultures' and Organisations". Harper Collins.

House, E. (1980). "Evaluating with Validity".

Huffman, E. (1990). "Medical Record Management". 9th Physicians Record Company.

Hughes, D. (1996). "NHS Managers as Rhetoricians: a Case of Culture Management?". *Sociology of Health and Illness*, 18(3):291-314.

Humphreys, T. Shofer, F. Jacobson, S. Coutifaris, C. Stemhagen, A. (1992). "Preformatted Charts Improve Documentation in the Emergency Department". *Annals of Emergency Medicine*, 21:534-540.

Hunt, J. (1981). "Applying American Behavioural Science: Some Cross-Cultural Problems". *Organisational Dynamics*, 10(1):55-62.

Hunter D. (1994). "From Tribalism to Corporatism: the Managerial Challenge to Medical Dominance, in *Challenging Medicine*". Routledge: London.

Hunter, D. (1996). "The Changing Roles of Health Care Personnel in Health Care Management". *Journal of Social Sciences*, 43:799-808.

Huw, T. Davies, O. and Nutley, S. (2000). "Organisational Culture and Quality of Health Care". *Journal of Quality of Health Care*, 9:111-119.

Hwang, M. Thorn, R. (1999). "The Effect of User Engagement on System Success: A Meta-analytical Integration of Research Findings". *Information and Management*, 35:229-236.

Iles, V. and Sutherland, K. (2001). "Managing Change in the NHS: Organisational Change". NHS Service Delivery and Organisation R and D Programme.

Isacsson, A. (1992). "Patient Number Based Computerised Medical Records in Crete. A Tool for Planning and Assessment of Primary Health Care". *Journal of Computer Methods and Programs in Biomedicine*, 37:41-49.

Ives, B. and Olsen, M. (1984). "User Involvement and MIS Success: A Review of Research". *Management Science*, 30(5):586-602.

Ives, B. Hamilton, S. and Davis, G. (1980). "A Framework for Research in Computer Based Information Systems". *Management Science*, 26:910-934.

Ives, B. Olsen, M. and Baroudi, J. (1983). "The Measurement of User Information Satisfaction". *Communication of the ACM*, 26(10):785-793.

Jabbara, J. (1989). "Bureaucracy and Development in the Arab world". *Journal of Asian and African Studies*, 15:1-12.

Jaeger, A. (1983). "The Transfer of Organisational Culture Overseas: An Approach to Control in the Multinational Corporation". *Journal of International Business Studies*, 14(2): 91-114.

Jager, P. (1994). "Communicating in Times of Change". *Journal of Systems Management*, 28-30.

Jarvenpaa, S. and Ives, B. (1991). "Executives Involvement and Participation in the Management of Information Technology". *MIS Quarterly*, 15(2): 205-227.

Javitt, J. (1986). "Computers in Medicine: Applications and Possibilities". W.B. Saunders Company Philadelphia.

Jayasuriya R. (1995). "Information Systems for Community Health: Are We Addressing the Right Strategy?". *Journal of information systems for Community Health*, 73: 43-61.

Jeremiah, H. Sable, J. Hales, W. Kenneth, D. (2000). "Medical Information in Health Organisations: A Survey of Health Information Managers". *Journal of the American Medical Informatics Association*, 83:74-84.

Jiang, J. and Klein, G. (1999). "Risks to Different Aspects of System Success". *Information and Management*, 36:263-272.

- Jiang, J. Muhanna, W. and Klein, G. (2000). "User Resistance and Strategies for Promoting Acceptance Across System Types". *Information and Management*, 37:25-36.
- Johns, M. (1996). "Information Systems Life Cycle". In Marvat, Sara Grostick, Mary Alice Hanken, and Allen Jacobs, *Health Information: Management of Strategic Resource*, 1st Edition: 623-665.
- Johnson, R. and William, O. (1989). "Management and Quality". Milwaukee: American Society for Quality Control.
- Joseph, L. and Cheng, C. (1983). "Interdependence and Coordination in Organisations: A Role System Analysis". *Academy of Management Journal*, March: 156-162.
- Joshi, K. (1990). "An Investigation of Equity as a Determinant of User Information Satisfaction". *Decision Sciences*, 21(4):786-793.
- Kandela, P. (1997). "Kuwait's Health System Charges Look Set to Dissuade Foreign Workers". *The Lancet*, 340:42.
- Kanter, R. (1983). "The Change Masters". London: George Allen and Unwin.
- Kanter, R. Stein, B. Jick, T. (1992). "The Challenges of Executions: Roles and Tasks in the Change Process". In: Kanter, R. Stein, B. Jick, T. eds. "Managing Change in Organisations". New York: Simon and Schuster.

Kanungo, R. (1982). "Work Alienation: An Integrative Approach". Praeger New York.

Kaplan, B. (1997a). "Addressing Organisational Issues into Evaluation of Medical Systems". Journal of the American Medical Informatics Association, 4:94-101.

Kaplan, B. (1997b). "Organisational Evaluation of Medical Information Resources". In Charles P. Friedman and Jeremy Wyatt. Evaluation Methods in Medical Informatics.

Kaplan, B. and Duchon, D. (1988). "Combining Qualitative and Quantitative Methods in Medical Informatics Systems Research: A Case Study". MIS Quarterly, December: 34-45.

Katz, D. and Khan, R. (1978). "The Social Psychology of Organisation". 2nd Edition New York Wiley.

Kendall, K. (1997). "The Significance of Information Systems Research on Emerging Technologies: Seven Information Technologies that Promise to Improve Managerial Effectiveness". Decision Sciences, 28(4):775-792.

Kerlin B. (1986). "Dissemination of COSTAR". Journal of Medical Systems, 3:265-269.

Khalaf, J. (1984). "The Kuwait National Assembly: A Study of its Structure and Function". PhD. Dissertation.

Khan, R. and Cannell, C. (1957). "The Dynamics of Interviewing". New York: Wiley.

Khouja, M. and Sadler, P. (1979). "The Economy of Kuwait: Development and Role in International Finance". London: The Macmillan Press Ltd.

Kimberly, J. (1976). "Organizational Size and the Structuralist Perspective: A Review, Critique, and Proposal". *Administrative Science Quarterly*, December: 571-597.

Kimberly, J. and Evanisko, M. (1981) "Organisational Innovation: The Influence of Individual, Organisational, and Contextual Factors on Hospital Adoption to Technology and Administrative Innovations". *Academy of Management Journal*, 24:689-713.

Kimble, C. (1988). "Social Psychology: Studying Human Interaction". Dubuque Iowa.

Kimchi, J. Polivka, B. and Stevenson, J. (1991). "Triangulation: Operational Definitions". *Nursing Research*, 40(6):364-366.

King, W. and Epstein, B. (1983). "Assessing Information System Value". *Decision Science*, 14(1): 34-45.

Kissinger, K. and Borchardt, S. (1996). "Information Technology for Integrated Health Systems". Positioning for the Future.

Kivimäki, M. Mäki, E. (1997). "Does the Implementation of Quality Management (TQM) Change the Wellbeing and Work-Related Attitudes of Health Care Personnel?" *Journal of Organisational Change Management*, 10: 456-470.

Kjerulff, K. Counte, M. Salloway, J. Campbell, B. and Noskin, D. (1988). "Medical Information System Training: An Analysis of the Reactions of Hospital Employees". *Computer Biomedical Research*, 17:303-310.

Klein, G. Jiang, J. and Balloun, J. (1997). "Information System Evaluation by System Typology". *Journal of Systems software*, 37: 181-186.

Koeck, C. (1998). "Time for Organisational Development in Healthcare Organisations". *BMJ*, 317:1267-8.

Kolb, D. and Frohman, A. (1970). "An Organisational Development Approach to Consulting". *Sloan Management Review*, 12(fall): 51-65.

Kotter, J. (1996). "Leading Change". Cambridge, MA: Harvard Business School Press.

Kotter, J. and Schlesinger, L. (1979). "Choosing Strategies for Change". *Harvard Business Review*, 57(2):106-14.

Kown, T. and Zmud, R. (1987). "Unifying the Fragmented Models of Information Systems Implementation". In R. Boland and Hirschheim. *Critical Issues in Information Systems Research*, John Wiley Publishing, New York, NY.

Kraemer, K. and Dutton, W. (1991). "Survey Research in the Study of Management Information Systems". In K. Kraemer (Ed). "The Information Systems Research Challenge: Survey Research Methods". Harvard Business School, 3:3-57.

Kriebel, C. (1979). "Evaluating the Quality of Information Systems: In Design and Implementation of Computer-Based Information Systems". Szyperski and Grochla Eds.

Krobock, J. (1984). "A Taxonomy: Hospital Information Systems Evaluation Methodologies". *Journal of Medical Systems*, 8(5); 211-221.

Kubursi, A. (1984). "Oil, Industrialisation and Development in the Arab Gulf States". Croom Helm Dover New Hampshire: 47.

Kuwait Government. (1993). "Civil Service Commission, Administrative Organisation Restructuring Committee, Report of the Project for Resolving Conflicts and Overlapping Specialists". Civil Service Commission.

Lacey, A. and Luff, D. (2001). "Qualitative Data Analysis". Trent Focus.

Laforest, F. (1999). "Medical Record Management Systems". *Methods of Information in Medicine*, 38: 89-95.

Lageman, R. and Melick, R. (2001). "HIPAA: Wake-UP call for Health Care Providers". *Journal of Health Care Finance*, 27(4):1-6.

Lai, V. and Mahapatra, R. (1997). "Exploring the Research in Information Technology Implementation". *Information and Management*, 32: 187-201.

Lamb, G. (1991). "Two Explanations of Nurse Practitioner Interactions and Participatory Decision-Making with Physicians". *Research in Nursing and Health*, 12(4) 379-386.

Lan, Z. Rainey, H. (1992). "Goals, Rules, and Effectiveness in Public, Private, and Hybrid Organisations: More Evidence on Frequent Assertions about Differences". *Journal of Public Administration Research and Theory*, 1: 5-28.

Laudato, N. and Orvatez, R. (1999). "Handouts of IS 2510". *Information System*, Fall Term.

Lawler, E. (1971). "Pay and Psychology of Work Behaviour". 4 Ed
Homewood Illinois: The Dorsey Press.

Lawler, E. (1981). "Pay and Organisational Development". Reading, Mass:
Addison-Wesley.

Lawler, E. and Hall, D. (1970). "Relationship of Job Involvement, Satisfaction, and Intrinsic Motivation". *Journal of Applied Psychology*, 54(4): 305-312.

Lawrence, L. (1994). "Safeguarding the Confidentiality of Automated Medical Information". *Journal on Quality improvement*, 20: 639-647.

Lawrence, P. (1970). "How to Deal with Resistance to Change". *Harvard Business Review*, January: 181-197.

Leavitt, H. and Pondy, L. (1973). "Read-in Managerial Psychology". Chicago: University of Chicago Press.

Lee, K. and Raman, K. (1990). "Application of Computers in Clinics in Singapore: Status and Doctors Perceptions". *Annals Academy of Medicine, Singapore* 19:580-594.

Leininger, M. (1985). "Transcultural Care Diversity and Universality: A Theory of Nursing". *Health Care*, 6(4):208-212.

Leonard, J. and Frohman, A. (1989). "Identifying and Closing the Gap in the Middle of Organisations". *Academy of Management Executives*, May: 107-114.

Leonard, K. Kevin Mercer. (2000). "A framework for Information Systems Evaluation: The Case of an Integrated Community-Based Health Services

Delivery System". International Journal of Health Care Quality Assurance, 13/2.

Leonard-Barton, D. and Kraus, W. (1985). "Implementing New Technology". Harvard Business Review, Nov-Dec: 102-110.

Lewin K. (1947). "Frontiers In-Group Dynamics". Human relations, 1:5-41.

Lewin, K. (1951). "Field Theory in Social Science". New York: Harper and Row.

Li, E. (1997). "Perceived Importance of Information System Success Factors: A Meta Analysis of Group Differences". Information and Management, 32:15-28.

Liesenfeld, B. Heekeren, H. Schade, G. Hepp, K. (1996). "Quality of Documentation in Medical Reports of Diabetic Patients". International Journal for Quality in Health Care, 8:537-542.

Linstone, H. (1981) "The Multiple Perspective Concepts with Application to Technology Assessment and Other Decision Areas". Technological Forecasting and Social Change, 20: 275-325.

Linstone, H. (1999). "Decision Making for Technology Executives Using Multiple Perspectives to Improve Performance".

- Livari, J. and Karjalainen, M. (1989). "Impact of Prototyping on User Information Satisfaction during the IS Specification Phase". *Information and Management*, 17(1):31-45.
- Locke, L. and Latham, G. (1990). "A Theory of Goal Setting and Task Performance". Englewood Cliffs NJ: Prentice Hall.
- Longva, A. (1997). "Walls Build on Sand: Migration, Exclusion, and Society in Kuwait". NY: Westview Press.
- Lorenzi, N. and Robert T. (2000). "Managing Change: An Overview". *Journal of American Medical Informatics Association*, 7: 116-124.
- Lorenzi, N. Andrew, J. Southon, G. and Bradley, J. (1997). "Antecedents of People and Organisational Aspect of Medical Informatics Review of the Literature". *Journal of the American Medical Informatics Association*, 4:79-93.
- Lu, H. Wang, J. (1997). "The Relationships between Management Styles, User Participation, and System Success over MIS Growth Stages". *Information and Management*, 32:203-213.
- Lucas, H. (1971). "Performance and Use of Information Systems". *Management Science*, 21(8):908-919.

Lucas, H. (1973). "A Descriptive Model of Information Systems in the Context of the Organisation. Proceeding of the Wharton Conference on Research on Computers in Organisations". Database, 5(2):27-36.

Lucas, H. (1975). "Why Information Systems Fail". Columbia University Press, New York.

Lucas, H. (1978). "Information Systems Concepts for Management". McGraw-Hill Series in Management Information Systems.

Lucas, H. (1992). "The Analysis, Design, and Implementation of Information Systems". 4th Edition.

Lucas, H. and Spitler, V. (1997). "Implementation in a World of Workstation and Networks". Information and Management, 33: 119-128.

Lucas, H. and Spitler, V. (2000). "Implementation in a World of Workstation and Networks". Information and Management, 38:67-80.

Luthans, F. (1984). "Successful vs. Effective Real Managers". Academy of Management Executive, 2(2):127-132.

Lynch, J. (1980). "A Study of Leadership and Satisfaction Variables in Medical Record Departments of General Hospitals". Journal of Allied Health, 9: 202-209.

Lynne, M. (1984). "Systems in Organisation". Pitman Publishing Inc.

- Mackenzie, S. (1995). "Surveying the Organisational Culture in a NHS Trust". *Journal of Management Medical*, 9:69-77.
- Mahmood, M. Adam, S. and Gary, J. (2000). "Impact of Information Technology Investment on Organisational Performance". *Journal of Management Information Systems*, 4 (spring):3-10.
- Malhotra, Y. (1998). "Business Process Redesign: An Overview". *IEEE Engineering Management Review*, 26(3): fall.
- Mallinowski B. (1922). "Argonauts of the Western Pacific". Routledge: London.
- Mandell, S. (1987). "Resistance to Computerisation". *Journal of Medical System*, 14(4):311-318.
- Mandil, S. Ibrahim, A. Khalid, M. and Rodringues, R. (1994). "The Development and Enhancement of the National Health Information System of Kuwait". World Health Organisation, 9.
- Mannion, R. and Goddard, M. (2002). "Public Disclosure of Comparative Clinical Performance Data: Lessons from the Scottish Experience". *Journal of Evaluation in Clinical Practice* 9(2): 277-286.

- Mannion, R. Huw, T. and Davies, O. (2001). "Reporting Health Care Performance: Learning from the Past, Prospects for the Future". *Journal of Evaluation in Clinical Practice*, 8(2): 215-228.
- Mansfield, B. (1986). "How Bad are Medical Records? A Review of the Notes Received by a Practice". *Journal of the Royal College of General Practitioners*, 36:406-412.
- Marks, E. (1989). "Poor Medical Records [letter]". *Annals of Internal Medicine*, 110:1037.
- Markus, M. (1983). "Power Politics and MIS Implementation". *Community ACM*, 26(6):430-444.
- Marriner, A. (1981). "Research Design: Survey/Descriptive". In Krampitz S. and Pavlovich N. (Eds). *Readings for Nursing Research* .67-74 St. Louis: Mosby.
- Marshall, M. Shekelle, P. Leatherman, S. and Brook, R. (2000). "Public Disclosure of Performance Data: Learning from the US Experience". *Quality Health Care*, 9: 53-57.
- Marshall, M., Sheaff, R. Rogers, A. Campbell, S. Halliwell, S. and Pickard, S. (2002). "A Qualitative Study of the Cultural Changes in Primary Care Organisations Needed to Implement Clinical Governance". *Britain Journal of General Practice*, 641-5.

Martin, J. (1984). "An Information System Manifesto". Prentice-Hall, Englewood Cliffs NJ.

Martin, J. (1992). "Cultures in Organisation: Three Perspectives". New York: Oxford University Press.

Martin, J. and McClure, C. (1983). "Buying Software off the Rack". Harvard Business Review, November-December: 32-60.

Marx, K. (1961). "Capital". London Lawrence and Wishart.

Mason, R. and Mitroff, I. (1973). "A Program for Research on Management Information Systems". Management Sciences, (5): 475-485.

Massaro, T. (1993). "Introducing Physician Order Entry at a Major Academic Medical Center: Impact on Organisational Culture and Behaviour". Academy Medicine, 68:20-5.

Maykut, P. (1994). "Beginning Qualitative Research: A Philosophic and Practical Guide". Routledge UK.

Maynard, D. (1989). "On the Ethnography and Analysis of Discourse in Institutional Setting". Perspectives on Social Problems, 1:127-146.

Mayo, E. (1933). "The Human Problems of Industrial Civilization". New York: Macmillan.

McGowan, M. and Madey, G. (1998). "Adoption and Implementation of Electronic Data Interchange: In Information Systems Innovation and Diffusion: Issues and Directions". Ed. Larsen, T. McGuire, E. IDEA Group Publishing.

McGrath, C. Alkhatib, M. and Bedi, R. and Zaki, A. (2003). "Translation and Validation of an Arabic Version of the UK Oral Health Related Quality of Life Measure in Syria, Egypt and Saudi Arabia". Community Dental Health Dec, 20(4):241-5.

McKinsey and Company. (1968). "Unlocking the Computer's Profit Potential". McKinsey Quarterly.

McKinsey, A. (1968). "Unlocking the Computer's Profit Potential, McKinsey and Company". Inc. New York.

McNutt, R. Abrams, R. and Arons, D. (2002). "Patient Safety Efforts Should Focus on Medical Errors". JAMA, 287.

McQueen, D. (1989). "Evoking Cultures for New Technologies". Med Info Proceedings of the Sixth Conference on Medical Informatics, 89:352-355.

Melhorn, J. Leqler, W. and Clark, G. (1979). "Current Attitudes of Medical Personnel toward Computers". Computer Biomedical Research, 12:327-334.

Melville H. (1977). "Medical Information Systems: A Source for Hospital".

Menduno, M. (1998). "Wired Hospital Health Network". *Health Information Systems*, 72:28-30.

Metz, A. (1990). "Don't Fail to Manage Diversity". *Training and Development*, 37(Nov. /Dec.): 37-38.

Metzger, J. and Drazen, L. (1993). "Computer-Based Record Systems that Meet Physicians Needs". *Journal of Health Care Information and Management Systems Society*, 11(3): 34-39.

Michel, J. and Hambrick, D. (1992). "Diversification Posture and the Characteristics of the Top Management Team". *Academy of Management Journal*, 35:9-37.

Miles, M. and Huberman, A. (1994). "Qualitative Data Analysis: An Expanded Sourcebook". 2nd Thousand Oaks CA: Sage.

Miles, R. (1987). "Macro Organisational Behaviour". Glenview: Scott Foresman.

Miller, A. and Yeager, R. (1993). "Managing Change: A Corporate Application of Rational-Emotive Therapy". *Journal of Rational-Emotive and Cognitive-Behaviour Theory*, 11:65-76.

Miller, D. and Friesen, P. (1982). "Structural Change and Performance: Quantum versus Piecemeal Incremental Approaches". *Academy of Management Journal*, December: 867-892.

Mills, C. (1951). "White Collar: The American Middle Classes". NY: Oxford University Press.

Milton, D. Rosenau, A. George, A. Castellion, N. and Anschuetz, F. (1996). *The PDMA Handbook of New Product Development (Hardcover)*. John Wiley and Sons.

Miner, J. (1984). "Theories of Organisational Structure and Process". Dryden Press.

Ministry of Health. (1982). "Official Document". Kuwait

Ministry of Health. (1985). "Official Document". Kuwait

Ministry of Health. (1995). "Official Document". Kuwait

Ministry of Health. (2002). "Health in Kuwait". Kuwait.

Ministry of Planning. (2002). "Kuwait and the Social Development". Kuwait.

Mintzberg, H. (1979). "The Structuring of Organisations: A Synthesis of the Research". Englewood Cliffs NJ: Prentice Hall.

- Mintzberg, H. (1989). "Mintzberg on Management: Inside our Strange World of Organisation". Chicago: Free Press.
- Mock, T. (1973). "Longitudinal Study of Some Information Structure Alternatives". Database, 5 (2, 3, and 4):40-50.
- Mohmood, M. and Becker, J. (1986) "Effect of Organisational Maturity on End-Users' Satisfaction with information system". Journal of Management Information Systems, 2(3):37-67.
- Moidu, K. Wigertz, O. (1989). "Computers and Physicians- an Appraisal Study". Medical informatics, 14: 63-70.
- Montanari, J. Morgan, C. and Bracker, J. (1990). "Strategic Management". Dryden Press.
- Montazemi, A. (1988). "Factors Affecting Information Satisfaction in the Context of the Small Business Environment". MIS Quarterly, 12(2):239-256.
- Moore, G. and Benbast, I. (1991). "Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation". Journal of Information Systems Research, 2:192-222.
- Moorhead, G. (1981). "Organisational Analysis: An Integration of the Macro and Micro Approaches". Journal of Management Studies, April: 191-218.

Moorhead, G. and Griffin, R. (1998). "Organisational Behaviour: Managing People and Organisations". Houghton Mifflin Company Four Edition.

Moorhead, G. Ference, R. and Neck, C. (1991). "Group Decision Fiascos Continue: Space Shuttle Challenger and a Revised Groupthink Framework". Human Relations, 44:539-550.

Morse, J. (2002). "A Comment on Comment". Qualitative Health Research, 12:3-4.

Mouly, G. (1978). "Educational Research: The Art and Science of Investigation". London, Allan and Bacon.

Mullins, L. (1996). "Management and Organisational Behaviour". 4th Ed Pitman Publishing.

Mumford, E. (1993). "The Participation of Users in Systems Design: An Account of the Origin, Evolution, and Use of the ETHICS Method, In Participatory design: Principles and Practices". Eds Schuler, D. and Namioka A. L. Erlbaum Associates: 257- 270.

Mumford, E. and Sackman. H. (1975). "International Human Choice and Computers: Conference Retrospect and Prospect. In Human Choice and Computers". Eds. North-Holland. Amsterdam.

- Murray, A. (1989). "Top Management Group Heterogeneity and Firm Performance". *Strategic Management Journal*, Special Issue 10:125-141.
- Myers, N. (1986). "Implementation of a Hospital-Wide Computer Information System: A Case of the Change Process". Master's Thesis, Brock University St. Catherines.
- Mytinger, R. (1968) "Innovation in Local Health Services". Washington D.C. Government Printing Office. Public Health Services Publication.
- Nachmias, C. and Nachmias, D. (1992). "Research Methods in Social Sciences". London. Edward Arnold.
- Nadler, D. and Tushman, M. (1989). "Organisational Framebending". *Academy of Management Executives*, 3:194-202.
- Naim, A. Shah, M. Shah, N. and Gomaa, R. (1986). "Health in Kuwait". Ministry of Public Health, Kuwait.
- Nath, R. (1989). "Aligning MIS with the Business Goals". *Information and Management*, 16(2):71-79.
- National Commission for the Protection of Human Subjects of Biomedical and Behavioural Research. (1978). "Belmont Report: Ethical Principles and Guidelines for Research Involving Human Subjects". Washington DC: US Government Printing Office DHEW Publication, 5: 78-0012.

National Five Year Plan. (1996). "Civil Commission Report on Resolving Overlaps" .Kuwait Government.

Newmann S. (1994). "Strategic Information Systems: Competition through Information". Technology, New York: Macmillan College Publishing Company.

Niskanen, W. (1971). "Bureaucracy and Representative Government". Chicago: Aldin-Atherton.

Nolan, R. Wetherbe, J. (1980). "Toward a Comprehensive Framework for MIS Research". Management Information Systems Quarterly, June: 1-9.

Northop, A. Kraemer, K. Dunkle, D. and King, J. (1990). "Payoffs from Computerisation: Lessons over Time". Public Administration Review, 50 (5): 505-514.

Olsen, M. and Ives, B. (1981). "User Involvement in System Design: An Empirical Test of Alternative Approaches". Information and Management, September: 183-195.

Orlicky, J. (1969) "The Successful Computer System". McGraw-Hill, New York.

Orlikowski, W. (1996). "Improving Organisational Transformation Over Time: a Situated Change Perspective". *Information Systems Research*, 7(1):63-92.

Ornstein, S. (1994). "Patient Perspectives on Computer-Based Medical Records". *The Journal of Family Practice*, 38:606-610.

Orthner, H. and Blum, B. (1989). "The Help System Development Tools Implementing Health Care Information Systems". Springer-Verlag Inc., New York.

Owen, C. (1968). "Social Stratification". New York: Routledge: London and Kegan Paul.

Paliva, S. and Chervany, N. (1995). "An Experimental Investigation of Factors Influencing Predicated Success in DSS Implementation". *Information and Management*, 29(43-53).

Pareto, V. (1963). "A Treatise on General Sociology". Dover Publications, New York.

Patton, M. (1990). "Qualitative Evaluation and Research Method". 2nd Newbury Park CA: Sage.

Paul Beynon-Davis. (1998) *Information Systems Development* 3rd Edition.

Payton, F. (1997). "Uncovering the Critical Factors in the Implementation Process of Interorganisational Health Care Information Systems". A Dissertation Case Study, Western Reserve University.

Payton, F. (2000). "Lessons Learned from Three Interorganisational Health Care Systems". *Information and Management*, 37: 311-321.

Pearce, J. and David, F. (1983). "A Social Network Approach to Organisational Design Performance". *Academy of Management Review*, July: 315-332.

Peppard, J. and Preece, I. (1995). "The Content, Context and Process of Business Process Re-engineering. In *Examining Business Process Re-engineering*". Eds G. Burke and Peppard. London: Kogan Page.

Perry, J. (1988). "The Public- Private Distinction in Organisation Theory: A Critique and Research Strategy". *Academy of Management Review*, 13:182-201.

Peters, T. Waterman, R. (1984). "In Search of Excellence: Lessons from America's Best-Run Companies". New York: Harper and Rowe.

Pettigrew, A. Ferlie, E. and McKee, L. (1992). "Shaping Strategic Change". SAGE: London.

Pettigrew, A. (1985). "The Awakening Giant". London: Blackwell.

Pettigrew, A. Whipp, R. (1991). "Managing Changes for Competitive Success". Oxford: Blackwell.

Petty, R. Cacioppo, J. and Schumann, D. (1983). "Central and Peripheral Routes to Advertising Effectiveness: The Moderating Role of Involvement". *Journal of Consumer Research*, 10: 135-146.

Pfeffer, J. (1982). "Organisations and Organisations Theory". Marshfield, MA: Pitman.

Phgh, D. Hickson, D. Hinnings, C. and Turner. (1969). "The Context of Organisation Structures". *Administration Science Quarterly*, 14(1):91-114.

Phil, W. (1989). "An Assessment of Strategic for Information Systems Evaluation: Lessons for Education". Chapter 7.

Pizer, C. (1981). "Struggle of Foreign Nurses in the US". *The Philippine Journal of Nursing*, (51): 22-24.

Pollitt, C. (1993). "Managerialism and the Public Services". Oxford: Blackwell.

Pope, C. and Mays, N. (1999). "Qualitative Research in Health Care". *BMJ Books* 2 Ed.

Popper, K. (1972). "Objective Knowledge". Oxford: Oxford University.

- Porras, J. and Robertson, P. (1992). "Organisation Development". In Handbook of Industrial and Organisational Psychology, Eds. M. Dunnette and L. Hough Consulting Psychologists Press, 3:719-822.
- Potter, J and Wetherell, M. (1987). "Discourse and Social Psychology; Beyond Attitudes and Behaviour". SAGE: London.
- Powers, R. (1973) "An Empirical Investigation of Selected Hypotheses Related to the Success of Management Information Projects". PhD Dissertation, University of Minnesota.
- Prescott, J. (1986). "Environments as Moderators of the Relationship between Strategy and Performance". Academy of Management Journal, June: 329-346.
- Prosser, M. (1978). "The Cultural dialogue: An Introduction to Intercultural Communication". Houghton Mifflin: Boston.
- Quinn, J. (1989). "Teamwork: An Essential Ingredient of Successful Health Care Management". Journal of Post Anesthesia Nursing, 81: 180-181.
- Rainey, H. Backoff, B. and Levine, C. (1976). "Comparing Public and Private Organisations". Public Administration Review, 36:233-244.
- Rajagopal, P. (2002). "An Innovation-Diffusion View of Implementation of Enterprise Resource Planning (ERP) Systems and Development of a Research Model". Information and Management, 40:87-114.

- Randolph, B. Cooper, A. and Zmud, R. (1990). "Information Technology Implementation Research: A Technological Diffusion Approach". *Management Science*, 36:2-13.
- Ray, M. (1996). "Health Care Systems In: , M. Grostick, S. Hanken, M. Jacobs, E. and Eds". *Health Information: Management of a Strategic Resource*. W.B. Saunders Company, 2-43.
- Raymond, L. (1985). "Organisational Characteristics and MIS Success in the Context of Small Business". *MIS Quarterly*, 9(1):37-52.
- Razzouqi, H. (1995). "Afya Net Kuwait's National Health Network". http://www.unesco.org/webworld/tunis/tunis97/com_39/com_39.html.
- Reiss, G. (1992). "Project Management Demystified". London: E& FN SPON.
- Remenyi, D. Sherwood, S. White, M. (1997). "Achieving Maximum Value from Information Systems: A Process Approach". *Management Science*, 55:23-30.
- Reznikoff, M. Holland, C. and Storebel, C. (1967). "Attitudes toward Computers among Employees of a Psychiatric Hospital". *Mental Hygiene*, 51(3):419-425.

Richard, M. (1994). "The Moving Wave of Technology". *Journal of Systems Management*, Feb: 109-116.

Ritchie, J. and Spencer, L. (1993). "Qualitative Data Analysis for Applied Policy Research". In Bryman A, Burgess R. "Analysing Qualitative Data". London: Routledge, 173-94.

Robbins, S. (1986). "Organisational Behaviour". 3rd Ed. Prentice/Hall.

Robertson, P. and Seneviratne, S. (1995). "Outcomes of Planned Organisational Change in the Public Sector". *Public Administration Review*, 55(6):547-58.

Roger, F. and Behets, J. (1987). "A Survey of Medical Informatics in Belgium". *Journal of Medical Informatics*, 12: 249-262.

Rogers, E. (1983). "Diffusion of Innovation". 2nd Edition, New York. Free Press.

Rogers, E. and Shoemaker, F. (1971). "Communication of Innovations: a Cross-Cultural Approach". New York: Free Press.

Rothernberg, J. and Goodman, J. (1985). "Strategies for the Evaluation of HIS Vendors". *Journal of AMRA*, May: 28-30.

Rousseau, D. (1989). "Managing the Change to an Automated Office: Lessons from Five Case Studies Office". *Technology and people*, 4: 31-52.

Rubinson, I. and Neutens, J. (1987). "Research Techniques for the Health Sciences". New York Macmillan Publishing Company.

Rutherford, D. (1992). "Dictionary of Economics". Routledge: London.

Rycroft-Malone, J. Harvey, G. Seers, K. Kitson, A. McCormack B. and Titchen, A. (2004). "An Exploration of the Factors that Influence the Implementation of Evidence into Practice" *Journal of clinical Nursing*, 13(8):913-24.

Sabatino, F. (1993). "Culture shock: Are US Hospitals Ready? ". *Hospitals* 20 May: 23-28.

Saeed, A. (2001). "Satisfaction and Correlates of Patients' Satisfaction with Physician's Services in Primary Health Care Centres". *Saudi Medical Journals*, 22: 262-267.

Salancik, G. and Pfeffer, J. (1978). ".An Examination of Need- Satisfaction Models of Job Attitudes". *Administrative Science Quarterly*, 23: 224-253.

Salih, K. (1991). "Kuwait: Political Consequences of Modernisation, 1950-1986". *Middle Eastern Studies*, 27(1):52-58.

Sandelowski, M. (1995). "Sample Size in Qualitative Research". *Research in Nursing and Health*, 18(2):179-183.

- Sandelowski, M. (1995). "Triangles and Crystals: On the Geometry of Qualitative Research". *Research in Nursing and Health*, 18(6):569-574.
- Sanders, G. (1985). "MIS/DSS Success Measure". *Systems, Objectives, Solutions*, 4:29-34.
- Sarantakos, S. (1993). "Social Research". Macmillan Press.
- Sarinen, T. (1996). "An Expanded Instrument for Evaluating Information Success". *Information and Management*, 36: 102-118.
- Schein, E. (1985). "Organisational Culture and Leadership". San Francisco: Jossey-Bass.
- Schein, E. (1985). "The Role of the Founder in Creating Organisation Culture" *Organisational Dynamics*, Summer: 14-21.
- Schermerhorn, J. (1985). "Managing Organisational Behaviour". New York: John Willey and Sons.
- Schneider, K. and Wagner, I. (1993). "Constructing the Dossier Representatif: Computer-based Information-Sharing in French Hospitals". *Computer. Support. Coop. Work*: 229-253.
- Schneider, P. (1998). "Partner in Risk: Who Pays When Your Systems Don't?" *Healthcare Informatics*, February: 222-234.

- Schoenfeld, P. and Baker, MD. (1991). "Documentation in the Paediatric Emergency Department: A Review of Resuscitation Cases". *Annals of Emergency Medicine*, 20:641-643.
- Schwartz, R. and Sullivan, D. (1993). "Managing Diversity in Hospitals". *Health Care Management Review*, 18(2):933-956.
- Scott, S. Lane, V. (2000) "A Stakeholder Approach to Organisation Identity". *Academy of Management Review*. January (25 IL):43-50.
- Scott, T. Mannion, R. Davies, H. and Marshall, M. (2003). "Implementing Culture Change in Health Care: Theory and Practice". *International Journal for Quality in Health Care*, 15(2):111-118.
- Scott, T. Mannion, R. Marshall, M. and Davies, H. (2003). "Does Organisational Culture Influence Health Care Performance? A Review of the Evidence". *Journal of Health Services Research and policy*, 8(2):105-117.
- Selltiz, C. Wrightsman, L. and Cook, S. (1976). "Research Methods in Social Relations". (3rd Ed.) New York: Holt, Rinehart, and Winston.
- Senge, P. (1990). "The Fifth Discipline: The Art and Practice of the Learning Organisation". London: Doubleday/Century Business.
- Senn, J. (1978). "Essential Principles of Information System Development". *MIS Quarterly*, 2(2):17-26.

Senn, J. (1987). "Information Systems in Management". 3rd Edition.

Shah, M. (1998). "General Problems of the Ministry of Health and Suggested Solutions". Unpublished Report, Kuwait.

Shah, M. Shah, N. and Behbehani, J. (1996). "Utilisation of Emergency Room Services in Post Liberation Kuwait". Unpublished Report, Kuwait.

Shah, N. (1986). "Foreign Workers in Kuwait: Implications for the Kuwaiti Labour Force". International Migration Review, 20(4):815-832.

Shah, N. (1998). "Structural Changes in the Receiving Country and Future Labour Migration- The Case of Kuwait". International Migration Review, 29(4):1000-1022.

Sharma, M. and Bhatia, G. (1996). "The Voluntary Community Health Movement in India: A Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis". Journal of Community Health, 21(6):453-63.

Shehab, F. (1964). "Kuwait: A Supper Affluent Society". Foreign Affairs, (42):461-466.

Sherif, C. Sherif, M. and Nebergall, R. (1965). "Attitude and Attitude Change: The Social Judgment- Involvement Approach". Saunders Philadelphia.

Sherman, D. and Smith, H. (1984). "The Influence of Organisational Structure on Intrinsic versus Extrinsic Motivation". *Academy of Management Journal*, December: 877-885.

Shojania, K. Duncan, B. and McDoland, K. and Wachter, R. (2002). "Safe But Sound: Patient Safety Meets Evidence-Based Medicine". *JAMA*, 88:508-13.

Shortell, S. Jones, R. Rademaker, A. Gillies, R. Dranove, D. Hughes, E. Budetti, P. Reynolds, K. and Huang, C. (2000). "Assessing the Impact of Total Quality Management and Organisational Culture on Multiple Outcomes of Care for Coronary Artery Bypass Graft Surgery Patients". *Medical Care*, 38(2): 207-17.

Shortell, S. Levin, D. Obrien, J. and Hughes, E. (1995). "Assessing the Evidence on CQI- is the Glass Half Full?". *Hospital and Health Services Administration*, 40(1): 4-24.

Shortliffe, E. (1976). "Computer-Based Medical Consultation: MYCIN". American Elsevier New York.

Shortliffe, E., Parreault, L., Fagan, L., and Wiederhold, G. (1990). "Medical Informatics Computer Application in Health Care". New York: Addison-Wesley.

Sifonis, J. and Goldberg, B. (1997). "Changing the Role of the CIO".
Information Week, March (623):69-82.

Silverman, D. (2000). "Interpreting Qualitative Data: Methods for Analysing
Talk, Text and Interaction". SAGE: London.

Simon, H. (1976). "Administrative Behavior". 3rd New York: Free Press.

Sirkka, J. Dickson, G. and DeSanctis, G. (1985). "Methodological Issues in
Experimental IS Research: Experiences and Recommendations". MIS
Quarterly, June: 141-156.

Slappendel, C. (1996). "Perspectives on Innovation in Organisations".
Organisation Studies, 17(1) 107-29.

Smith & Nephew Sustainability Report. (2003). "Chief Executive's
Statement". <http://www.smith-nephew.com/sustainability2003/ceo.html>.

Smith, P. (1995a). "On the Unintended Consequences of Publishing
Performance Data in the Public Sector". International Journal of Public
Administration, 18:277-310.

Smith, p. (1995b). "Outcome-Related Performance Indicators and
Organisational Control in the Public Sector: In Performance Measurement and
Evaluation" Eds J. Holloway J. Lewis and G. Mallory 192-216 London: Sage.

Smith, S. Muir, K. and Wolstenholme, J. (1996). "Continued Inadequacies in Data Source for the Evaluation of Cancer Services". *British Journal of Cancer*, 75:131-133.

Snyder-Halpern, R. and Chervany, N. (2000). "A Clinical Information System Strategic Planning Model for Integrated Healthcare Delivery Networks". *Journal of Nursing Administration*, 30(12) Dec: 583-591.

Sohal, A. and Fitzpatrick, P. (2002). "IT Governance and Management in Large Australian Organisations". *International Journal of Production Economics*, 75: 97-112.

Sohal, A. and Ng, L. (1996). "The Role and Impact of Information Technology in Australian Business". *Journal of Information Technology*, 13(3): 201-217.

Southon, G. Sauer, C. and Dampney, K. (1999). "Lessons from Failed Information Systems Initiatives: Issues for Complex Organisations". *International Journal of Medical Informatics*, 55:33-46.

Spasted, D. (1980). "Modern Kuwait: Ministry of Information". *Journal of Management Studies*, 11:77-78.

Sprague, R. and Carlson, E. (1982). "Building Effective Decision Support Systems". Englewood Cliffs, New Jersey, Prentice-Hall.

Sprague, R. and McNurlin, B. (1993). "Information Systems Management in Practice". New Jersey Published by Prentice-Hall International Inc.

Stahl, D. (1994). "Development of Subacute Care Services". Nursing Management, 25(11):32-37.

Stair, R. (1992). "Principles of Information Systems: A Managerial Approach".

Startsman, T. and Robinson, R. (1972). "The Attitudes of Medical and Paramedical Personnel toward Computers". Computer Biomedical Research, 5:218-227.

Stephen, J. (1992). "Evaluating Health Care Information Systems". SAGE: London.

Stewart, D. and Shamdasani, P. (1991). "Focus Groups: Theory and Practice". SAGE: London.

Stone, D. (1977). "Improvement of Administration and Performance through Education, Training and Advisory Services". Kuwait: Office of the Minister for Legal and Administrative Affairs, November: 66-76.

Strong, J. and Brodt, A. (1985). "Assessment of Nurses Attitudes toward Computerisation". Computers in Nursing, 3:4-11.

Sudman, S. and Bradburn, N. (1982). "Asking Questions: A Practical Guide to Questionnaire Design". San Francisco: Jossey-Bass.

Swanson, B. (1974) "Management Information Systems: Appreciation and Involvement". *Management science* (2):178-188

Tan, B. and Lo, T. (1990). "Validation of a User Satisfaction Instrument for Office Automation Success". *Information and Management*, 18(4):203-208.

Tan, K. (1992). "Health Management Information Systems: Theories, Methods and Applications". *Information and Management*, 30(4): 105-115.

Taylor, C. (1991). "The Multicultural Organisation". *Academy of Management Executives*, 5(2): 34-47.

Taylor, F. (1914). "The Principles of Scientific Management". New York: Harper and Bro.

Tenner, E. (1996). "Why Things Bite Back: Technology and the Revenge of Unintended Consequences". New York.

Teo, T. and Ranganathan, C. (2003). "Levering IT Resources and Capabilities at the Housing and Development Board". *Journal of Strategic Information Systems*, 12: 229-249.

The PDMA. (1996). "Handbook of New Product Development". Published by John Wiley and Sons. New York.

- Thomas, M. (1990). "Measuring and Interpreting Organisational Culture". *Journal of Nursing Administration*, 20(6): 17-24.
- Thompson, J. (1967). "Organisations in Action". New York: McGraw-Hill.
- Tice, K. (1990). "Gender and Social Work Education, Directions for the 1990s". *Journal of Social Work Education*, 26(2): 134-144.
- Tichy, N. and Ulrich, O. (1984). "The Leadership Challenge- A Call for the Transformational Leader". *Sloan Management Review*, fall: 59-68.
- Toivanen, T. Lahti, S. and Leino-Kilpi, H. (1999). "Applicability of SWOT Analysis for Measuring Quality of Public Oral Health Services as Perceived by Adult Patients in Finland". *Community Dent Oral Epidemiology*, 27(5):386-91.
- Tompkins, P. (1982). "An Intro to Thetoric and Communication". Belmont, CA: Wadsworth Publishing Co.
- Traynor, M. "Managerialism and Nursing Beyond Oppression and Profession". Routledge: London.
- Tucker, S. and Thompson, K. (1990). "Will Diversity = Opportunity + Advancement for Blacks?". *Black Enterprise*, November: 50-60.
- Tumin, M. (1985). "Social Stratification: The Forms and Functions of Inequality". New Jersey: Printice-Hall INC.

Turban, E. McLean, E. and Wetherbe, J. (1999). "Information Technology for Management". 2nd Edition.

United Nations Development Program. (1996). "Report on the Reorganisation of the State Structure". State of Kuwait.

United Nations. (1993). "Kuwait Country Human Development Indicators". New York. Human Development Report Office.

Utterback, J. (1974) "Innovation in Industry and the Diffusion of Technology". Science, 183:620-630.

Van Maanen, J. and Barley, S. (1983). "Cultural Organisation: Fragments of a Theory". Paper Presented at the Annual Meeting of the Academy of Management Dallas, Texas.

Vanlommel, E. and De Brabander, B. (1975). "The Organisation of Electronic Data Processing (EDP) Activities and Computer Use". Journal of Business, 48(3):391-410.

Vertinsky, B. Thompson, W and Uyeno, D. (1974). "Measuring Consumer Desire for Participation in Clinical Decision Making". Health Service Research, 9(2):121-134.

Vincent, S. (2000). "Critical Factors of ISDN Implementation: An Exploratory Study". Information and Management, 38: 119-128.

Vincent, S. Lai, R. and Maapatra, K. (1997). "Exploring the Research in Information Technology Implementation". *Information and Management*, 32: 187-201.

Wager, K. Wickham, F. White, A. Ward, D. and Ornstein, S. (2000). "Impact of an Electronic Medical Record System on Community-Based Care Practices". *JABFP*, September-October 13(5): 338-348.

Waterman, R. Peters, T. and Philips, J. (1980). "Structure is not Organisation" Business Horizon Foundation for the School Business India University.

Watson, R. (1990). "Influences on the Information System Managers Perceptions of Key Issues: Information Scanning and the Relationship with the CEO". *MIS Quarterly*, 14 (2): 217-231.

Weber, M. (1947). "The Theory of Social and Economic Organisation". New York: Free Press.

Weick, K. and Quinn, R. (1999). "Organisational Change and Development". *Annual Review of Psychology*, 50:361-386.

Weiner, M. Gress, T. and Theimann, D. (1999) "Contrasting Views of Physicians and Nurses about an Inpatient Computer-Based Provider Order-Entry System". *Journal of American Medical Information Association*, 6:234-44.

Weir, C. Crockett, R. and Gohlinghorst, S. (2000). "Does User Satisfaction Relate to the Adoption Behaviour? An Exploratory Analysis Using CPRS Implementation". *Information and Management*, 22: 456-463.

Weir, C. Lincoln, M. Rosceo, D. Turner, C. and Moreshead, G. (1994) "Dimensions Associated with Successful Implementation of a Hospital Based Integrated Order Entry System". *Proc Annul Symp Comput Appl Med Care*, 653-7.

Weizenbaum, J. (1976). "Computer Power and Human Reason: From Judgement to Calculation". San Francisco: CA.

Welch, J. (1999). "Implementation Information systems: A System Development Overview". *Journal of AHIMA*, May: 66-73.

Westly, B. and MacLean, M. (1957). "A Conceptual Model for Communication Research". *Jerusalem Quarterly*, 34:31-38.

Wetherbe, J. (1988). "System Analysis and Design". 3rd Edition.

Wharton, A. and Erickson, R. (1993). "Managing Emotions on the Job and at Home: Understanding the Consequences of Multiple Emotional Roles". *Academy of Management Journal*, September: 457-486.

Wiersema, M. and Bantel, K. (1992). "Top Management Team Demography and Corporate Strategic Change". *Academy of Management Journal*, 35: 91-121.

WIKIPEDIA. "The Free Encyclopedia". http://en.wikipedia.org/wiki/Main_Page

Willcocks, I. and Mark, A. (1989). "IT Systems Implementation: Research Findings from the Public Sector". *Journal of Information Technology*, 4(2): 92-103.

Wilson, J. Bulatao, T. and Rascati, K. (2000). "Satisfaction with a Computerised Practitioner Order-Entry System at Two Military Health Care Facilities". *American Journal of Health System Pharmacy*, 57:45-53.

Winston, G. (1994). "Multiculture: A Planning Process". Ohio: Criddin Publishing.

World Bank. (1995). "Kuwait: Country Economic Memorandum". Volume 1, Executive Summary; Volume 2, Kuwait Labour, Employment and Population; Volume 3, Reform of the Kuwaiti Public Sector, Volume 4, Other Background Studies (Washington, DC: Technical Co-operation Unit, Country Department 2, Middle East and North Africa Region, 15 March 1995).

World Health Organisation. (2002). "Health Systems and Services Development". *RD Annual Report*, Chapter 3.

- Wyatt, J. (1994). "Clinical Data Systems: Data and Medical Records". *Lancet*, 344: 1543-7.
- Wyatt, J. (1995). "Hospital Information Management: The Need for Clinical Leadership". *BMJ*, 311: 175-80.
- Wyatt, J. (1995). "Hospital Information Management: The Need for Clinical Leadership". *BMJ*, 311:175-180.
- Yasai-Ardekani, M. (1986). "Structural Adaptation to Environments". *Academy of Management Review*, January: 9-21.
- Yin, R. (1982). "Conserving America's Neighbourhoods". New York: Plenum.
- Young, A. Das, S. Carroll, S. and Chard, T. (1993). "A National Survey to Assess Current Use of Computerised Information Systems in Obstetrics". *British Journal of Obstetrics and Gynecology*, 100:3.
- Zand, D. (1974). "Collateral Organisations: A New Change Strategy". *Journal of Applied Behavioural Science*, 10: 63-89.
- Zand, D. (1995). "Force Field Analysis". In *Encyclopedic Dictionary of Organisational Behaviour*, Ed. N. Nicholson. Oxford: Blackwell.
- Zaviran, M. (1992). "Evaluating User Satisfaction in a Hospital: An Exploratory Study". *Health Care Management Review*, 17(3): 51-62.

Zinn, T. (1989). "Automated Systems Selection, Part Two: The Vendor's Role". Healthcare Forum Journal, November/December: 84-85.

Zoonky, L. and Gosain, S. (1990). "Topics of Interest in IS: Evolution of Themes and Differences between Research and Practice". Information and Management, 36:233-246.

Zumd, R. (1978). "An Empirical Investigation of the Dimensionality of the Concept of Information". Decision Sciences, April: 187-195.

Appendix 1: Summarises the Result of the Literature Search Conducted to Locate other Studies in which the Quality of Implementation of IS

Author	Context	Methodology	Main findings
Lucas (1978)	USA	Survey	The study aims to identify organisational factors that influence successful IS implementation
Ginzberg (1979)	USA	Questionnaire	A study of management science implementation of organisational change was conducted. The study reconstructed the implementation process of 29 computer-based projects with data collected from managers and management scientists. The data indicates that project success is strongly related to the handling of the implementation process.
Ginzberg (1981)	USA	Interviews and questionnaire	The study attempts to address the implementation management question by exploring the use of MIS users' pre-implementation expectations about a system as indicators of the likely success of that system. The result strongly suggests that users who hold realistic expectations prior to implementation are more satisfied with the system and use it more than users whose pre-implementation expectations are unrealistic.
Bailey et al., (1983)	USA	Questionnaire	Identify factors that make an IS successful.
Cheney et al.,(1986)	USA	Case study	The paper attempts to identify organisational variables that affect the success or failure of end user computing within an organisation. The variables are classified as controllable, partially controllable, or uncontrollable. A conceptual scheme originally suggested by Ein-Dor and Segev is adopted and applied to end-user computing.
Baroudi et al., (1988)	USA	Questionnaire	The study examines the psychometric properties of the short-form measure of user information satisfaction.

Doll et al.(1988)	USA	Questionnaire and Interviews	The study aims to measure the satisfaction of users who directly interact with the computer.
Sarinen (1996)	Finland	Questionnaire	The article discusses the approaches for success evaluation and proposes some extensions to the current user information satisfaction. There are no generally and quantitatively and objectively measure an information system success.
Lu et al.(1997)	Taiwan	Questionnaire	IS implementation can be viewed as on-going process of organisational change. The article investigates the relationships between management styles, user participation, and system success over MIS growth stages.
Li (1997)	USA	Questionnaire	The study aims to identify factors influencing the success or failure of IS.
Downing (1999)	USA	Survey	User satisfaction with information systems is one of the most important determinants of the success of those systems.
Southon et al. (1999)	Australia	Interviews	User satisfaction with information systems is one of the most important determinants of the success of those systems.
Jiang et al. (1999)	USA	Questionnaire	System success is related to many risks associated with IS development. System success is a multidimensional trait, not properly described by a single measure.
Jiang et al. (2000)	USA	Questionnaire	Understanding the factors that contribute to the success of systems development efforts is a central concern in the field of IS. Users resistance to change is a key factor to which many IS implementation difficulties have been attributed.
Payton (2000)	USA	Qualitative and Qualitative	Identify factors critical to the implementation process.

Basu et al. (2001)	USA	Quantitative (questionnaire)	Organisational commitment, senior management involvement, and team involvement are typically expected to have a positive impact on the achievement of strategic information systems planning objectives.
--------------------	-----	---------------------------------	--

Appendix 2: Summary of the Quality of the Studies

Author	Study Design	Sampling	Measurement	Response Rate	Data collection
Lucas (1978)	Survey	Survey of nearly 2000 people in fifteen different organisations	User satisfaction	-	Independent
Ginzberg (1979)	Questionnaire	300 IS managers	User satisfaction	-	-
Ginzberg (1981)	Interviews and questionnaires	Interviews with a sample of 6 portfolio managers to develop an instrument for measuring pre-implementation expectation. A questionnaire included items relating to variables often suggested as important determinants of implementation success (a total of 44 portfolio managers)	User satisfaction	82%	By author
Bailey et al., (1983)	Questionnaire	8 organisations and 32 managers	User satisfaction System quality	75%	Independent
Cheney et al.,(1986)	Questionnaire	A survey of the 7 academic and trade literature	Organisational impact	60%	By author
Baroudi et al., (1988)	Questionnaire	Wide variety of industries including banking, insurance, retailing, and manufacturing. A total of 358 employees completed the questionnaire. 12 from each company.	User satisfaction	-	-

Author	Study Design	Sampling	Measurement	Response Rate	Data collection
Doll et al. (1988)	Questionnaire and Interviews	Survey of 618 end users to 44 firms randomly selected	User satisfaction	-	Independent
Sarinen (1996)	Questionnaire	272 IS managers from 200 largest companies and 25 largest banks and insurance companies in Finland were contacted using mail and asked to contribute to the study.	User satisfaction and System success	80%	By author
Lu et al. (1997)	Questionnaire	497 questionnaires were mailed to MIS managers of their companies. 172 questionnaires were returned.	Organisational impact	34.6%	-
Li (1997)	Questionnaire	608 members of a national IS professional association in the US were randomly selected, the subjects were solicited to participate and 160 agreed	User satisfaction	85%	By author
Downing (1999)	Survey	Random selection of population 500 surveys were mailed to employees	User satisfaction	52.6%	Independent

**Appendix 3: Summaries the Result of the Literature Search Conducted to
Locate Studies of IS/IT**

Author	Context	Methodology	Study aim
Kimberly et al., (1981)	USA	Survey	The study aims to identify the influence of personnel, organisational and contextual factors on hospital adoption.
Counte et al., (1983)	USA	Questionnaire	A study was conducted to explain variability in hospital employee responses to the implementation of the medical information system.
Kjerulff et al., (1988)	USA	Questionnaire	The study aims to test employee's satisfaction with the medical information system.
Kaplan et al., (1988)	USA	Qualitative and Quantitative methods	The article reports how quantitative and qualitative methods were combined in a longitudinal multidisciplinary study of interrelationships between perceptions of work and a computer information system.
Bailey (1990)	USA	Questionnaire	A measuring and managing user attitude toward various aspects of computer systems is an important part of making those systems effective.
Zviran (1992)	USA	Questionnaire	The study aims to demonstrate the usefulness of user satisfaction measurement to pinpoint potential problems with HIS.
Young et al., (1993)	UK	Questionnaire	The study aims to determine end-user satisfaction with these systems.
Brodnik et al., (1994)	USA	Survey	The study was conducted to identify barriers to implementing as perceived by a random sample.

Weir (1994)	USA	Questionnaire	The study aims to identify the most important facilitating and impeding factors associated with implementation of an order entry application. It was found that although available functionality was the most commonly factor by all participants, hardware availability, physicians involvement were more often mentioned by successful hospitals than by less successful hospitals.
Chea et al., (1994)	Korea	Survey	The study analyses the effects that the introduction and adoption of a health management information system can have on both the productivity of health centre staff as well as on user satisfaction.
Ash (1995)	USA	Qualitative	The study was used to identify factors most important in the implementation stage of IS.
Ash (1997)	USA	Questionnaire	The study aims to identify factors most important in implementing computer-Based patient record. Organisational variables such as decision making and planning had significant impact although the relation between planning and diffusion was negative.
Weir (2000)	USA	Questionnaire	User satisfaction is commonly used as in evaluations of IS as a proxy for user adoption in hospitals. The purpose of the paper is to explore the relationship between user satisfaction and user adoption behaviour.

Wager et al., (2000)	USA	Qualitative	The study explores the organisational impact of an EMR on community-based practices that have overcome the initial barriers.
Wilson et al., (2000)	USA	Questionnaire	The aim of the study is to evaluate user satisfaction in two military hospitals.
Ash et al., (2003)	USA	Qualitative (Observation, interviews and focus groups)	To describe the perception of diverse professionals involved in computerised physician order entry (POE) at sites where POE has been successfully implemented. Four themes emerged: Organisational issues, clinical and professional issues, technical, and issues related to organisation of information and knowledge. Four high level themes were identified: (1) organisational issues; (2) clinical and professional issues; (3) technical/implementation issues and (4) issues related to the organisation of information and knowledge. An organisation culture that characterised by collaboration and trust were important element in successful implementation of physician order entry.
Doolan et al., (2003)	USA	Qualitative	The study aims to describe advanced clinical IS in the context in which it is implemented and are being used.
Ash et al., (2004)	USA	Survey	The study aims to determine the availability of inpatient computerised physician order entry in the US hospitals and the degree to which physicians are using it.

Appendix 4: Critical Appraisal of Studies

Author	Study Design	Sampling	Measurement	Response Rate	Data collection
Kimberly et al., (1981)	Survey	A sample from both the hospital administrators and the chief of medicine in each hospital in the study.	Organisational and personnel issues	82%	By author
Counte et al., (1983)	Questionnaire	68 employees were chosen randomly from the list of 305	Organisational and personnel issues	75%	By author
Kjerulff et al., (1988)	Questionnaire	Random sample of 68 employees	User satisfaction and Organisational and personnel issues	78%	-
Kaplan et al., (1988)	Qualitative and Quantitative methods	31 interviews were conducted and 248 employees were surveyed 119 completed.	Organisational and personnel issues	48%	By author
Bailey (1990)	Questionnaire	860 users in 70 hospitals	User satisfaction	30%	-

Ash (1995)	Interviews	34 interviews at three health centres.	Organisational issues	-	By author
		hospital 110 questionnaires were returned, of which 101 had complete and usable information			
Young et al., (1993)	Questionnaire	300 users in 3 hospitals	User satisfaction	65%	By author
Brodnik et al., (1994)	Survey	Random samples of 1,150 subjects were used. The sample was derived from the membership rosters of the AHIMA.	Organisational and personnel issues	46.3%	-
Weir (1994)	Questionnaire	Random sampling from 6 hospitals, ninety two individuals received a questionnaire.	Organisational issues	52%	By author
Chea et al., (1994)	Four surveys were conducted	Three surveys measuring the adoption process and one survey measuring the satisfaction of visitors of 139 the centre.	User satisfaction	-	-

Ash (1997)	Survey	A sample of 629 informatics experts representing 67 institutions was used to identify factors most important in implementing computer-Based Patient Record.	Organisational issues	73%	By author
Weir (2000)	Survey	Two groups of users, the first group sample size were 30 and the second sample size was 152. Three methods for measuring user satisfaction were imbedded in the survey.	User satisfaction	First group response rate were 80% and the second group response rate were 33%	By author
Wilson et al.,(2000)	Questionnaire	A mailed survey to 243 consisted of all users from two military health care facilities	User satisfaction	59%	By author
Wager et al., (2000)	Qualitative	51 formal semi structured interviews (12 physicians, 3 physicians' assistants, 11 nurses, and 25 support staff). Another 15 informal interviews were conducted with nurses and support staff	Organisation issues	-	By author
Ash (2003)	Observations, focus groups and interviews	Three focus groups were held. Eleven participants in addition to four nurses and clinical pharmacist.	Organisational issues	-	Independent
Doolan et al., (2003)	Interviews, observation and documents	38 interviews and two-year period survey 237 physicians were surveyed	Organisational issues	-	By author

Ash et al., (2004)	Survey	Combined mail and telephone survey of 964 randomly selected hospitals.	Organisational issues	65%	-
-----------------------	--------	---	-----------------------	-----	---

APPENDIX-5

KUWAIT UNIVERSITY
Faculty of Allied Health
Sciences and Nursing
Dean's Office



بسم الله الرحمن الرحيم

كلية الطب المساعد
مركز الأبحاث
العلوم الطبية

مكة الكويت
العلوم الطبية
أداة التمريض
كتب العميد

المحترم

الفاضل الدكتور / عبدالرحيم الزيد
وكيل وزارة الصحة

تقوم الطالبة / مها الهاجري - طالبة دكتوراه في جامعة لندن (بريطانيا) بأعداد بحث لنيل
درجة الدكتوراه في مجال ادارة المستشفيات تحت عنوان " تطبيق الحاسب الآلي في مستشفى عام"
مؤلفة ما بين المستشفيات العامة والخاصة .
ولا يخفى عليكم أهمية هذه الدراسة للتعرف على العوامل المؤثرة على تطبيق أجهزة
الحاسب الآلي في المستشفيات العامة ويساهم هذا البحث في تقييم الواقع الوظيفي في المستشفيات
وبمستوى الخدمات الصحية في المرافق الصحية في البلد .
نأمل بتسهيل مهمة الباحث لما يحقق الفائدة المرجوة .

شاكرين لكم حسن تعاونكم

وتفضلوا بقبول فائق الاحترام والتقدير ...

عميد الكلية
أ. د. حبيب طاهر أبل

نسخة إلى :
العميد المساعد للشئون الطلابية / ملف العام

ص.ب. ٣١٤٧٠ - صليبخات - الرمز البريدي: 90805 - الكويت - تلفون: ٤٨١٦٦٧٢ - فاكس: ٤٨٢٠٩٢٧ (٩٦٥)
P.O. Box: 31470 Sulaibikhat - 90805 - Kuwait, Tel. 4816672 - Fax: (965) 4830937

Appendix 6- Interview Guide

General information (5-10 min)

1. How long you are working in this hospital?
2. What were your responsibilities with HIS implementation?
3. Summary by moderator

Organisational issues (10-15 min)

1. Did you serve on any committee, working groups or provided input to the policies maker for HIS implementation?
2. At the planning stage of computerisation, were the medical record staffs involved in terms of their output/inputs from end users viewpoints?
3. Since you have a computerised system, how is it performing?
4. Summary by moderator

Organisational culture (10-15 min)

1. Is there a job description or guidelines for the employees?
2. It is common practice that employees are provided training so that they are ready before introducing a new system. Does your hospital have a training system?

3. In your opinion, does the hospital have a system of incentives or rewards for better work performances?
4. Is there an existing system for evaluating the competency and effectiveness of hospital employees? What is it?
5. Is the system known and followed? Please explain?
6. What happens when the employee is not competent in his/her position?
7. Is the incompetent employee trained for improvement?
8. Are there any differences in the salary structure of various professionals?
And on what basis is the salary structure decided?
9. Summary by moderator

User satisfaction Issues (10-15)

1. Does using the system affect your work?
2. Is the system compatible with your current work?
3. Is using the system beneficial to your job?

Other Issues (5-10 min)

1. Is there any other issue related to HIS implementation you would like to discuss?
2. Summary with moderator.

Appendix 7

Questionnaire

Factors Affecting the Successful Implementation of Health Information Systems (HIS) In Kuwait Health Care Delivery System

Dear colleague

I am a Doctoral student at the London School of Hygiene and Tropical Medicine (LSHTM), United Kingdom, currently conducting a research study on the "The implementation of a Health Information systems (HIS) in Kuwait health care delivery system". The study aims to achieve a better understanding of the implementation of HIS in public and private sectors, and thereby improve the quality of health services.

The questionnaire is divided into two Sections. The first section is concerned with the demographics of the respondents & their general attitude towards computer usage. Whereas the second section is concerned with certain factors, that were previously agreed upon, to be possibly of influence on the success of HIS implementation. This section is divided into two parts. In the first part, respondents are asked to use a Likert Scale to show their perception regarding to the degree they agree whether each factor inquired about affects HIS implementation. Whereas in the second part, a table is provided in which the respondents can rank the factors in terms of their importance in affecting the success of HIS implementation in their organisation.

May I request you to kindly complete the enclosed questionnaire. Please appreciate that there are no right or wrong answers to any of the questions in the questionnaire. The information that you provide will be treated with strict confidentiality and your name will be not identified anywhere in the report.

Your answers will help me to identify the factors that contribute to the successful or unsuccessful implementation of HIS in Kuwait, and based on your answers, I will be able to make the necessary recommendations to the Ministry of Health to improve the quality of health care services.

You have been selected randomly and your frank and honest answers are extremely important for the success of this study.

Thank you for your cooperation.

Sincerely,

Maha AL-Hajerri

NP: For any questions or inquiries please use this contact number:

Maha AL-Hajerri at: (Mobile) 9086420

SECTION ONE

Demographics & general attitude toward computer usage:

Directions: The following section inquires about respondents' demographic information. It also inquires about their general attitude towards computer usage. Please circle the appropriate response and provide other information as necessary.

1. Organisation

- [0] MOH (Ministry of Health)
- [1] Al-Amiri Hospital
- [2] Al-Mowasat Hospital

2. Sex

- [0] Female
- [1] Male

3. Age

- [1] 17 – 20
- [2] 21 – 29
- [3] 30 – 40
- [4] 41 – 50
- [5] 51 – 60
- [6] 61 – 70

4. Nationality?

- [0] Kuwaiti
- [1] No-Kuwaiti,
If [1] Please state your nationality.....

5. Education level?

- [0] High school or less
- [1] Under- graduate
- [2] Graduate
- [3] Professional education
- [4] Others (please specify).....

6. Language proficiency, please circle the one that applies

- | | | [0] | [1] | [2] | [3] |
|-----|---------|------|---------|------|-----------|
| [A] | English | Poor | Average | Good | Excellent |
| [B] | Arabic | Poor | Average | Good | Excellent |

7. Current job position in relation to the Information System used in your organisation (please tick as many as apply)
- [1] Management, (Please specify your job position).....
 - [2] User, (Please specify your job position).....
 - [3] Other, (Please specify your job position).....
8. Number of years in current work place
- [1] Less than one year
 - [2] 1-5 years
 - [3] 6-10 years
 - [4] 11-20 years
 - [5] More than 20
9. If you are a clinician, what is the number of patients in an average per week you generally work with
- [1] 0 patient per week
 - [2] 1-5 patients per week
 - [3] 6-10 patients per week
 - [4] 11-15 patients per week
 - [5] 16-20 patients per week
 - [6] 25 or more (specify).....
 - [7] Not applicable
10. Number of years you have been using the Health Information Systems (HIS) system in your current work place
- [1] Less than one year
 - [2] 1-5 years
 - [3] 6-10 years
 - [4] 11-20 years
 - [5] More than 20
11. How do you characterise your overall attitude towards using computers at work
- [1] I like to use computers
 - [2] I do not like to use the computers
 - [3] With more training I think I would like to work with computer
12. In the last year, I have attended some HIS training class(s) (Check as applies)
- [1] None
 - [2] On the job, specify number and type of courses
 - [3] Outside of work training, specify number and type of courses....
.....
 - [4] Other, specify number and type of courses

SECTION TWO

Part One

Perceptions regarding factors influencing Information Systems Success:

Directions: The following factor may be one reason that may cause problems with Health Information Systems (HIS) implementation and therefore affects the success of the implementation process. Please circle a letter on the left indicating how you feel about each statement. [(SA) strongly agree, (A) agree, (U) undecided, (D) disagree, (SD) strongly disagree and (DK) don't know]. Please give only one answer to each question.

- Each statement from 1 to 40 should be read as follows:

The following factor (e.g. 2. Factor 2: Training, i.e. The provision of adequate compatible training to the users) affects HIS implementation success.

- | | | | | | | | |
|----|---|----|---|---|---|----|----|
| 1. | Factor 1: Relative advantage:
The HIS used in your organisation improves the users' way of doing things. | SA | A | U | D | SD | DK |
| 2. | Factor 2: Training:
The organisation provided adequate compatible training to the users. | SA | A | U | D | SD | DK |
| 3. | Factor 3: Compatibility:
The HIS used in your organisation is compatible to the users' work needs. | SA | A | U | D | SD | DK |
| 4. | Factor 4: Trialability:
Your organisation provided you with an opportunity for HIS to be experimented with on trial basis prior to system implementation. | SA | A | U | D | SD | DK |
| 5. | Factor 5: Ease of usage:
The system used in your organisation is user friendly. | SA | A | U | D | SD | DK |
| 6. | Factor 6: Observability:
The benefits and results of the system are observable by others in the organisation. | SA | A | U | D | SD | DK |

7.	Factor 7: Organisational size: The shortage of staff in your organisation.	SA	A	U	D	SD	DK
8.	Factor 8: Workload: The HIS increased users' workload in your organisation.	SA	A	U	D	SD	DK
9.	Factor 9: Bureaucracy: The bureaucratic system of rules and procedures in your organisation.	SA	A	U	D	SD	DK
10.	Factor 10: Centralisation: Centralisation of decision-making authority in your organisation.	SA	A	U	D	SD	DK
11.	Factor 11: Organisational stability: The frequent position changes in the top management in your organisation.	SA	A	U	D	SD	DK
12.	Factor 12: Organisational diversity: Your organisation employed people with different cultural backgrounds which negatively influenced HIS.	SA	A	U	D	SD	DK
13.	Factor 13: Language barrier: There is a language barrier among the employees in your organisation.	SA	A	U	D	SD	DK
14.	Factor 14: Accountability: Lack of active rules and regulations to assess poor performances in your organisation.	SA	A	U	D	SD	DK
15.	Factor 15: Incentives: Incentives are used to encourage system usage persuasion in your organisation.	SA	A	U	D	SD	DK

16.	Factor 16: Leadership Absence of supportive leadership during HIS implementation process in your organisation.	SA	A	U	D	SD	DK
17.	Factor 17: Quality of planning: Insufficient planning by top management before taking the decision to adopt HIS in your organisation.	SA	A	U	D	SD	DK
18.	Factor 18: Quality of planning: Lack of computer experience by top management in your organisation.	SA	A	U	D	SD	DK
19.	Factor 19: Top management commitment: Top management in your organisation was committed to the process of implementation from its beginning to the end.	SA	A	U	D	SD	DK
20.	Factor 20: Formation of implementation team: Your organisation formed a team consisting of representatives from all stakeholders to manage the whole implementation process.	SA	A	U	D	SD	DK
21.	Factor 21: Champion: The top management in your organisation lacked the role of a leader who guides the process of HIS implementation.	SA	A	U	D	SD	DK
22.	Factor 22: Quality of communication: A conflict of interest was present among different committees in the top management regarding HIS implementation in your organisation.	SA	A	U	D	SD	DK

23.	Factor 23: Quality of communication: Your organisation lacked a committee of users that meets to solve problems with the HIS and report to the top management.	SA	A	U	D	SD	DK
24.	Factor 24: Resource allocation: Limited resources are allocated by your organisation.	SA	A	U	D	SD	DK
25.	Factor 25: End users' involvement: Lack of end-users' involvement during design stage of the HIS in your organisation.	SA	A	U	D	SD	DK
26.	Factor 26: Resistance to change: The existence of some employees' professional pride in your organisation.	SA	A	U	D	SD	DK
27.	Factor 27: Competition: Your organisation lacks competition from rivalry organisations.	SA	A	U	D	SD	DK
28.	Factor 28: Uncertainty: The uncertainty of HIS benefits by the users in your organisation.	SA	A	U	D	SD	DK
29.	Factor 29: System quality: The system used in your organisation does not provide the needed information by the users in its output.	SA	A	U	D	SD	DK
30.	Factor 30: System quality: The system used in your organisation fails to provide various output formats needed by users.	SA	A	U	D	SD	DK
31.	Factor 31: System quality: The system used in your organisation does not provide precise information needed by users.	SA	A	U	D	SD	DK

32.	Factor 32: System quality: Needed information is provided by the system used in your organisation within acceptable time.	SA	A	U	D	SD	DK
33.	Factor 33: System quality: The system implemented improves the confidentiality of information in your organisation.	SA	A	U	D	SD	DK
34.	Factor 34: System quality: It is difficult to transfer information from the old system to the new Information System in your organisation.	SA	A	U	D	SD	DK
35.	Factor 35: Experience: In your organisation users' lack computer experience.	SA	A	U	D	SD	DK
36.	Factor 36: On site support: Your organisation provides adequate system support staff.	SA	A	U	D	SD	DK
37.	Factor 37: On site support: Your organisation provides all needed users' manuals and supportive materials.	SA	A	U	D	SD	DK
38.	Factor 38: Maintenance: Your organisation provides all needed hardware, software, and other devices for HIS maintenance.	SA	A	U	D	SD	DK
39.	Factor 39: System evaluation: Your organisation lacks continuous HIS evaluation.	SA	A	U	D	SD	DK
40.	Factor 40: Equity: There is a distinction in salaries between Kuwaitis and non-Kuwaitis in your organisation.	SA	A	U	D	SD	DK

41. Please make any additional comments or suggestions that might help us.
Use the back of this page if necessary. (Write in Arabic or English).

.....

.....

.....

.....

.....

.....

Please continue to SECTION TWO.

SECTION TWO
Part Two

Perceptions regarding the most important factors influencing Health Information Systems Success:

Directions: Each question from number 1 to 40 in Part One of SECTION TWO of the questionnaire inquired about your perception regarding a factor whether you may think affects the success of HIS implementation in your organisation. These factors are listed in a table in the **next page**. Using the table, please rank at least five factors in terms of their importance in affecting the success of HIS implementation.

For clarification purposes as to what each factor stands for, a column titled "operational definition" was set to provide the definition of each factor.

Directions: Using the table, please rank at least five factors in terms of their importance in affecting the success of HIS implementation in your organisation.

Factors	Operational Definition	Your Rank
1. Relative advantage	Degree of improvement the new HIS adds	
2. Compatibility	Past experience (same as "Training" factor)	
3. Compatibility	Current needs of users	
4. Trialability	New system experimentation on trial basis	
5. Ease of usage	Same as "System quality" factor)	
6. Observability	To others in the work place	
7. Organisational size	Number of employees	
8. Organisational size	Amount of workload for users with the new system	
9. Organisational Structure	Bureaucracy	
10. Organisational Structure	Centralization	
11. Organisational stability	Changes of positions	
12. Organisational diversity	With regard to its employees	
13. Organisational diversity	With regard to language	
14. Policy & regulations	Accountability	
15. Policy & regulations	Incentives; persuasion mechanism	
16. Management support	Leadership	
17. Quality of planning	Top management decision-making	
18. Quality of planning	Top management computer experience	
19. Top management commitment	To the process until completion	
20. Formation of implementation team	Formation of a team consisting of different stakeholders	
21. Champion	Top management leader role in guidance	
22. Quality of communication	Conflict of interest	
23. Quality of communication	Between users & management	
24. Resource allocation	Limitation of resources	
25. End user's involvement	In design phase	
26. Resistance to change	Professional pride	
27. Competition	Lack of rivalry competition	
28. Uncertainty	Of new HIS benefits to the users	
29. System quality	Content	
30. System quality	Format	
31. System quality	Accuracy	
32. System quality	Timeliness	
33. System quality	Confidentiality	
34. System quality	Transformation	
35. Experience.	Of users	
36. On site support	Availability of support staff on the workplace	
37. On site support	Availability of users' manuals & supportive materials	
38. Maintenance	Availability of parts for system maintenance	
39. System evaluation	Performance of continuous HIS evaluation studies	
40. Equity	In salaries between Kuwaitis & non-Kuwaitis	

Thank you for taking the time to participate in this study.

Maha Al-Hajerri
HSRU54SHTM